

New Jersey Department of Environmental Protection

Bureau of Release Prevention

ENVIRONMENTALLY SENSITIVE AREAS GUIDANCE DOCUMENT

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Introduction

This guidance on environmentally sensitive areas is intended for use as a reference and a guide when gathering information to be used in preparing the topographical maps for Discharge Prevention, Containment and Countermeasure (DPCC), and Discharge Cleanup and Removal (DCR) Plans. It gathers in one place all the citations listed in N.J.A.C. 7:1E-1.8, which establishes the definition of environmentally sensitive areas (ESA) for the purpose of developing the DPCC/DCR plan. The areas described in this document are by no means the only ESA in New Jersey, but represent those most likely to be adversely affected by a discharge of a hazardous substance. When used in conjunction with the requirements of N.J.A.C. 7:1E-4.10, Mapping criteria, it will prove useful in preparing the topographical maps and the offsite response measures that are required as part of the DCR plan. Additional information concerning the certification of ESA information is available in the Guide to Preparing a DPCC/DCR Plan.

N.J.A.C. 7:1E-4.2(b)9 requires that topographical maps covering all surrounding areas which could be affected by a discharge from a facility, including ESA, be included in the DPCC plan. In addition, off-site response measures covering ESA is to be submitted as a part of the DCR plan, under N.J.A.C. 7:1E-4.3(b)8. N.J.A.C. 7:1E-1.8 sets forth geographical areas which will be considered ESA for the purposes of designing and implementing the DPCC and DCR plans.

The definition of "environmentally sensitive areas" at N.J.A.C. 7:1E-1.8 has been developed for planning and use in the prevention and control of discharges of hazardous substances. The term is referred to in the Spill Compensation and Control Act (N.J.S.A. 58:10-23.11 *et seq.*), but is not defined therein.

In 1991, a task force drawn from the diverse programs within the Department used a number of factors in order to define ESA. These factors included importance to the quality of life in New Jersey, scarcity of the resource, importance placed on the area by other State and Federal legislation, and the ecology of the area. The areas the task force determined should be given the highest priority in protection from discharges, based on the above factors, and revised over the years to reflect changes in other Departmental rules, are included in the section defining of "environmentally sensitive areas" in N.J.A.C. 7:1E.

The resulting definition, at N.J.A.C. 7:1E-1.8, describes those areas which would be most likely to be adversely affected by the discharge of a hazardous substance. The owner or operator of a major facility is responsible for determining whether these areas would be affected by a discharge from their facility. Environmentally sensitive areas may need special protection in the event of a discharge. By identifying and mapping such areas, owners or operators of major facilities will be better able to prioritize their responses to a discharge.

The following document describes each area considered environmentally sensitive pursuant to N.J.A.C. 7:1E-1.8, giving a brief summary of what this area encompasses and the pertinent text of the citation(s) referenced.

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SURFACE WATERS, N.J.A.C. 7:1E-1.8(a)1

AREA: Surface waters, including without limitation the following: large rivers, medium rivers, streams, creeks, ponds, lakes and reservoirs as defined in N.J.A.C. 7:7E-4.1(b), canals as defined in N.J.A.C. 7:7E-3.8(a), estuaries, as defined in 33 U.S.C. 1330(k), and bays, including without limitation open bays, semi-enclosed bays and back bays, as defined in N.J.A.C. 7:7E-4.1(b).

ENVIRONMENTAL IMPORTANCE: Surface waters include all types of open water, such as rivers, streams, ponds, lakes, bays, canals, and estuaries. These must be protected to prevent waterfowl, animals, and fish from being adversely affected by a discharge. In addition, waters important for recreational activities, such as boating and fishing, are included in this category and must be protected for their cultural and economic value. Freshwater waterways serving as passages to and from spawning areas are important for the survival of numerous varieties of fish and are thus to be protected. Water areas are wintering points for birds, such as the Canada Goose and other waterfowl, and breeding areas for colonial waterbirds and aquatic furbearers, such as otter, muskrat, beaver, and mink.

CITATIONS: N.J.A.C. 7:7E-4.1(b)3 defines large rivers as waterways with watersheds greater than 1,000 square miles, which means the Delaware, Hudson, and Raritan Rivers.

1. The Delaware River is a tidal river from the Bridge Street Bridge in Trenton to its mouth at Delaware Bay, defined as a line between Alder Cover, Lower Alloways Creek Township and the Delaware River Basin Commission-River and Bay Memorial at Liston Point, Delaware.

2. The Hudson River is a tidal river from the New York State Line to its mouth at Upper New York Bay at the Morris Canal, Jersey City.

3. The Raritan River is a tidal river from a point approximately 1.1 miles upstream from the Landing Lane Bridge between Piscataway and Franklin Townships to its mouth at Raritan Bay and the Arthur Kill.

N.J.A.C. 7:7E-4.1(b)5 defines medium rivers, streams and creeks as channels with a watershed area of less than 1,000 square miles. This includes watercourses such as the Hackensack, Passaic, Oldmans, Big Timber, Pennsauken, Navesink, Manasquan, Toms, Wading, Mullica, Great Egg, Maurice, Cohansey, Salem and Rancocas.

Ponds, lakes and reservoirs are defined by N.J.A.C. 7:7E-4.1(b)2 as relatively small water bodies with no tidal influence or salinity. Many are groundwater fed, while others serve as surface aquifer recharge areas. Lakes that are the result of former mining operations are not included here, but are defined separately as wet borrow pits.

N.J.A.C. 7:7E-3.8(a) states that canals are navigation channels for boat traffic through land areas which are created by cutting and dredging or other human construction technique sometimes enlarging existing natural surface water channels. The Cape May, Point Pleasant, and

Delaware and Raritan Canals are the principal examples in the New Jersey Coastal zone.

In accordance with 33 U.S.C. 1330(k), the term "estuarine zone" means an environmental system consisting of an estuary and those transitional areas which are consistently influenced or affected by water from the estuary such as, but not limited to, salt marshes, coastal and intertidal areas, bays, harbors, lagoons, inshore waters, and channels, and shall also include associated aquatic ecosystems and those portions of tributaries draining into the estuary up to the historic height of migration of anadromous fish or the historic head of tidal influence, whichever is higher. The term "estuary" means all or part of the mouth of a river or stream or other body of water having unimpaired natural connection with open sea and within which the sea water is measurably diluted with fresh water derived from land drainage.

According to N.J.A.C. 7:7E-4.1(b)6, an "open bay" is defined as a large, semi-confined estuary with a wide unrestricted inlet to the ocean and with a major river mouth discharging directly into its upper portion. Delaware Bay, Raritan Bay, Sandy Hook Bay, and Upper New York Bay are the only representatives of this waterbody type in New Jersey.

Semi-enclosed bays and back bays are defined at N.J.A.C. 7:7E-4.1(b)7 as partially confined estuaries with direct inlet connections and some inflow of freshwater. Semi-enclosed bays differ from back bays in depth, degree of restriction of inlet and level of freshwater inflow. Great Bay and Great Egg Harbor are examples of semi-enclosed bays; Barnegat Bay, Little Egg Harbor, the Shark River estuary and other bays in Atlantic and Cape May Counties are back bays.

Examples of many of these water body types are given in Figure 13, contained in the Appendix to N.J.A.C. 7:7E, the Coastal Zone Management rules.

SOURCES OF WATER SUPPLY, N.J.A.C. 7:1E-1.8(a)2

AREA: Any water resource, as defined at N.J.A.C. 7:19-1.3, which is utilized by a public water system, nonpublic water system or water supply system, as defined in N.J.A.C. 7:10-1.3.

ENVIRONMENTAL IMPORTANCE: Water resources include any river, stream, lake, pond, aquifer, other underground source, or other water body which may be diverted to a water supply system. These include feeder streams entering a water supply reservoir, reservoirs and buffer zones, and the aquifers utilized by water supply wells with their attendant wellhead protection areas. These must be protected to prevent contamination of drinking water supplies and widespread and long lasting contamination of aquifers.

CITATIONS: "Aquifer" is defined by N.J.A.C. 7:19-1.3 as any subsurface water-saturated zone which is significantly permeable so that it may yield sufficient quantities of water from wells or springs in order to serve as a practical source of water supply. A "confined aquifer" is an aquifer which contains groundwater under pressure between or below relatively impermeable or significantly less permeable material so that the water surface rises above the top of the aquifer in a well which derives its water from that aquifer. Finally, an "unconfined or semi-confined aquifer" is an aquifer that is either exposed to atmospheric pressure or bounded by layers of materials which do not serve as an effective barrier to water migration.

According to N.J.A.C. 7:10-1.3, "public water system" means a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves at least 25 individuals daily at least 60 days out of the year. Such term includes any collection, treatment, storage and distribution facilities under control of the operator of such system and used primarily in connection with such system, and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. A public water system is either a "community water system," which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents, or a "non-community water system," that regularly serves at least 25 of the same persons for more than six months in any given calendar year or that serves at least 25 transient individuals for at least 60 days in any given calendar year.

"Water supply system" means a physical infrastructure operated and maintained to deliver water on either a retail or wholesale basis to customers.

"Nonpublic water system" means a water system that is not a public water system. It includes any water system providing potable water to individual dwellings, and any water system regularly serving fewer than 15 service connections and fewer than 25 individuals.

BAY ISLANDS AND BARRIER ISLAND CORRIDORS, N.J.A.C. 7:1E-1.8(a)3

AREA: Bay islands as defined at N.J.A.C. 7:7E-3.21(a), and barrier island corridors as defined at N.J.A.C. 7:7E-3.20(a).

ENVIRONMENTAL IMPORTANCE: Bay islands are non-oceanfront islands surrounded by tidal waters. Barrier island corridors are those portions of oceanfront barrier islands lying upland of wetlands and beaches including the filled water's edge. They provide valuable wildlife habitat and potential habitat for colonial nesting birds and threatened and endangered species.

CITATIONS: N.J.A.C. 7:7E-3.21(a) states that bay islands are islands or filled areas surrounded by tidal waters, wetlands, beaches or dunes, lying between the mainland and barrier islands. Such islands may be connected to the mainland or barrier island by elevated or fill supported roads. Examples of bay islands are contained in Figure 3 in the Appendix to N.J.A.C. 7:7E, the Coastal Zone Management rules. Existing lagoon edges are not bay islands.

Barrier island corridors are defined by N.J.A.C. 7:7E-3.20(a) as being the interior portions of oceanfront barrier islands, spits, and peninsulas. Along the New Jersey coast, headlands are located between Monmouth Beach, Monmouth County and Point Pleasant Beach, Ocean County.

The oceanfront barrier island corridor encompasses that portion of barrier islands, spits and peninsulas (narrow land areas surrounded by both bay and ocean waters and connected to the mainland) that lies upland of wetlands, beach and dune systems, filled water's edges, and existing lagoon edges. Barrier island corridor does not apply to the headlands of northern Ocean County, Monmouth County, and the southern tip of Cape May County, which are part of the mainland.

BEACHES, N.J.A.C. 7:1E-1.8(a)4

AREA: Beaches, as defined in N.J.A.C. 7:7E-3.22(a).

ENVIRONMENTAL IMPORTANCE: Beaches are migratory stopover areas and wintering areas for a great variety of migratory birds and are, therefore, ecologically important. They also support numerous other types of plant and animal life on a year-round basis. In addition, contamination of beaches in tourist areas could cause severe economic repercussions to the tourism industry in New Jersey.

CITATIONS: According to N.J.A.C. 7:7E-3.22(a), beaches include both natural and man-made features. Beaches are gently sloping areas of sand or other unconsolidated material that extend landward from the mean high water line to either: (1) a man-made feature generally parallel to the ocean, inlet, or bay waters, such as a retaining structure, seawall, bulkhead, road or boardwalk, except that sandy areas that extend fully under and landward of an elevated boardwalk are considered beach areas, or (2) the seaward or bayward foot of dunes, whichever is closest to the bay, inlet or ocean waters. Examples of beaches are contained in Figure 1 in the Appendix to N.J.A.C. 7:7E, the Coastal Zone Management rules.

Beaches can be found on all tidal shorelines, including ocean, bay and river shorelines.

DUNES, N.J.A.C. 7:1E-1.8(a)5

AREA: Dunes, as defined in N.J.A.C. 7:7E-3.16(a).

ENVIRONMENTAL IMPORTANCE: Dunes include both natural and man-made formations of vegetated or drifting wind-blown sand, found along beaches. Dunes are migratory stopover areas and wintering areas for a great variety of migratory birds and are, therefore, ecologically important. They also support numerous other types of plant and animal life on a year-round basis.

CITATIONS: N.J.A.C. 7:7E-3.16(a) defines a dune as a wind or wave deposited or man-made formation of sand (mound or ridge), that lies generally parallel to, and landward of, the beach, and the foot of the most inland dune slope. "Dune" includes the foredune, secondary or tertiary dune ridges and mounds, and all landward dune ridges and mounds, as well as man-made dunes, where they exist. Examples of dunes are contained in Figure 1 in the Appendix to N.J.A.C. 7:7E, the Coastal Zone Management rules.

Formations of sand immediately adjacent to beaches that are stabilized by retaining structures, and/or snow fences, planted vegetation, and other measures are considered to be dunes regardless of the degree of modification of the dune by wind or wave action or disturbance by development.

A small mound of loose, windblown sand found in a street or on a part of a structure as a result of storm activity is not considered to be a "dune".

WETLANDS AND WETLAND TRANSITION AREAS, N.J.A.C. 7:1E-1.8(a)6

AREA: Wetlands and wetland transition areas, including without limitation the following: freshwater wetlands and transition areas, as defined in N.J.A.C. 7:7A-1.4; wetlands, as defined in N.J.A.C. 7:7E-3.27(a); and wetland buffers and transition areas, as defined in N.J.A.C. 7:7E-3.28(a).

ENVIRONMENTAL IMPORTANCE: Wetlands and wetland transition areas include coastal wetlands and a buffer of 150 feet from the wetland edge, freshwater wetlands and a buffer of 300 feet from the wetland edge, and current or former cranberry bogs. Wetlands are regulated and protected under the Wetlands Act of 1970 (N.J.S.A. 13:9A-1 *et seq.*) or the Freshwater Wetlands Protection Act of 1987 (N.J.S.A. 13:9B-1 *et seq.*). The various types of wetlands are host to a great variety of plant and animal life and are both economically and ecologically important resource areas.

Wetlands contribute to the physical stability of the coastal zone by serving as a transitional area between forces of the open sea and upland areas. They absorb and dissipate wind-driven storm waves and storm surges, act as a flood water storage area, and as a sediment and pollution trap. Also, wetlands naturally perform the wastewater treatment process of removing phosphorous, nitrogenous and other water pollutants.

The biological productivity of New Jersey's wetlands is enormous and critical to the functioning of estuarine and marine ecosystems. They provide nutrients for bacteria and protozoan, which are in turn fed upon by larger invertebrates. Finfish, shellfish, and other resources feed on these invertebrates. New Jersey's wetlands are prime wintering habitat annually for hundreds of thousands of migratory waterfowl. Approximately two-thirds of marine finfish and shellfish are known to be estuarine, and, therefore, wetlands dependent.

Inland herbaceous wetlands, such as bogs and marshes, play an important role in regulating the quality of the water in streams. They retard runoff and store storm waters. They are critical habitats and movement corridors for several species of plants and animals that are endangered or threatened. They are productive habitats for game and non-game animals, such as fur bearers and song birds. These wetlands also serve as fire breaks and may limit the spread of forest, brush, or grass fires.

Forested wetlands play a critical role in coastal and other ecosystems. Roots and trunks stabilize shorelines and trap sediment. They are physical and biochemical water filter areas maintaining stream water quality. White cedar stands, as well as other lowland swamp forests, play an important role in purifying water in coastal streams, retarding runoff, providing scenic value, and serving as a rich habitat for many endangered plant and animal species, as well as game species, such as deer. White cedars also act as forest fire breaks. White cedar is New Jersey's most valuable timber species. The wood has a long tradition of maritime and local craft uses. Unfortunately, white cedars have been eliminated from much of their previous range in New Jersey.

CITATIONS: N.J.A.C. 7:7A-1.4 defines "freshwater wetland" to mean an area that is inundated

or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation. The Department, in designating a wetland, uses the three-parameter approach (that is, hydrology, soils and vegetation) enumerated in the current edition of the "Federal Manual for Identifying and Delineating Jurisdictional Wetlands." These include tidally influenced wetlands which have not been included on a promulgated map pursuant to the Wetlands Act of 1970, N.J.S.A. 13:9A-1 *et seq.* A "transition area" is an area of upland adjacent to a freshwater wetland which minimizes adverse impacts on the wetland or serves as an integral component of the wetlands ecosystem.

"Wetland" or "wetlands" is defined at N.J.A.C. 7:7E-3.27(a) to mean an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation.

All tidal wetlands situated in the Raritan Basin, south along the Atlantic Ocean and north along Delaware Bay and Delaware River which are delineated at a scale of 1:2,400 on official maps as listed under N.J.A.C. 7:7-2.2, are subject to the Wetlands Act of 1970. Generalized locations of both coastal and inland wetlands can be found at a scale of 1:24,000 on maps produced for the National Wetlands Inventory by the U.S. Fish and Wildlife Service. The Department also has location maps available for coastal wetlands, at a scale of 1:2,400, and generalized location maps for freshwater wetlands, at a scale of 1:12,000. All of these types of maps are available from the Department's Map and Publications sales office (telephone number (609) 777-1038).

Generalized locations of some wetland types can be found in county soil surveys prepared by the U.S. Department of Agriculture, Soil Conservation Service. These maps are useful as an indicator to assist in the preliminary determination of the presence or absence of wetlands only. They have been determined to be unreliable for the purpose of locating the actual wetlands boundary. All tidal and inland wetlands, excluding the delineated tidal wetlands defined pursuant to N.J.A.C. 7:7-2.2, must be identified and delineated in accordance with the USEPA three-parameter approach of hydrology, soils and vegetation.

N.J.A.C. 7:7E-3.28(a) defines "wetlands buffer" or "wetlands transition area" as an area of land adjacent to a wetland which minimizes adverse impacts on the wetlands or serves as an integral component of the wetlands ecosystem. Examples of transition areas are contained in Figure 7 in the Appendix to N.J.A.C. 7:7E, the Coastal Zone Management rules. A wetlands buffer or transition area of up to 150 feet in width is to be established adjacent to all wetlands defined and regulated under the Freshwater Wetlands Protection Act. For all other wetlands, including wetlands regulated under the Coastal Wetlands Act of 1970, a wetlands buffer of up to 300 feet is to be established.

CRITICAL WILDLIFE HABITAT, N.J.A.C. 7:1E-1.8(a)7

AREA: Critical wildlife habitats, as defined in N.J.A.C. 7:7E-3.39.

ENVIRONMENTAL IMPORTANCE: Critical wildlife habitats include breeding areas for various types of wildlife, migratory stopover areas for migrant shorebirds, raptors, and passerines, and wildlife wintering areas. All of these areas are essential for maintaining a varied and healthy wildlife population in New Jersey.

Breeding areas for forest area nesting species include large tracts of contiguous forest with populations of one or more of neotropical migrant species. Breeding areas for colonial waterbirds are areas occupied by one or more of fifteen species of colonially nesting birds (from one of the last 5 census counts). Breeding areas for aquatic furbearers include those areas which provide food, water or cover, or sites to rear young, for any of the following species: otter, muskrat, beaver, or mink. Breeding areas are of vital importance to the survival of all species of birds and animals in New Jersey.

The migratory stopover areas for migrant shorebirds include all beaches and tidal marsh habitats along the Delaware Bay and Atlantic Coast from Cape May Point north to the Cohansey River and Cape May Point north to Sea Isle City. The migratory stopover areas for migrating raptors and passerines include the lower 10 kilometers of Cape May Peninsula. The contamination of a migratory stopover area during the migration season could result in death or injury for thousands of birds that do not make their permanent homes in New Jersey. This could seriously damage the population of some species.

Wintering areas include coastal tidal marshes and water areas (sounds, bays, rivers) from Raritan Bay South to Cape May and from Cape May North to Rancocas; waterfowl concentration areas, which include all water areas (streams, ponds, lakes), estates, municipal and county parks, corporate lands, and Fort Dix; and Atlantic white cedar stands. A stand is a contiguous group of trees sufficiently uniform in species composition, arrangement of age classes, and condition to be a homogeneous and distinguishable unit.

CITATION: N.J.A.C. 7:7E-3.39(a) defines critical wildlife habitats as specific areas known to serve an essential role in maintaining wildlife, particularly in wintering, breeding, and migrating. These include rookeries for colonial nesting birds, such as herons, egrets, ibis, terns, gulls, and skimmers; stopovers for migratory birds, such as the Cape May Point region; and natural corridors for wildlife movement. In addition, ecotones, or edges between two types of habitats, are a particularly valuable critical wildlife habitat. Many critical wildlife habitats, such as salt marsh water fowl wintering areas, and muskrat habitats, are singled out as water or water's edge areas.

Definitions and maps of critical wildlife habitats are currently available only for colonial waterbird habitat in the 1979 Aerial Colony Nesting Waterbird Survey for New Jersey (NJDEP, Division of Fish and Wildlife).

PRIME FISHING AREAS, N.J.A.C. 7:1E-1.8(a)8

AREA: Prime fishing areas, as defined in N.J.A.C. 7:7E-3.4(a).

ENVIRONMENTAL IMPORTANCE: Prime fishing areas are those tidal or water's edge areas with a history of local fishing use. Fishing and shellfishing are important recreational and commercial activities in New Jersey.

CITATION: According to N.J.A.C. 7:7E-3.4(a), prime fishing areas include tidal water areas and water's edge areas which have a demonstrable history of supporting a significant local quantity of recreational or commercial fishing activity. The area includes all coastal jetties and groins and public fishing piers or docks. Prime fishing areas also include all red line delineated features within the coastal waters illustrated in: B.L. Freeman and L.A. Walford (1974) Angler's Guide to the United States Atlantic Coast Fish; Fishing Grounds and Fishing Facilities, Section III and IV; or as areas indicated on New Jersey's Specific Sport and Commercial Fishing Grounds Chart (page 14) contained in "New Jersey's Recreational and Commercial Ocean Fishing Grounds," Long and Figley (1984); some artificial reefs off the New Jersey coast are identified in Figley (1989), "A Guide to Fishing and Diving New Jersey's Artificial Reefs", and The Fishing Grounds of Raritan, Sandy Hook and Delaware Bays as determined in Figley and McCloy (1988) "New Jersey's Recreational and Commercial Fishing Grounds of Raritan Bay, Sandy Hook Bay and Delaware Bay, and The Shellfish Resources of Raritan Bay and Sandy Hook Bay". As of 2004, fourteen artificial reefs have been created along the Jersey Coast. While these information sources apply only to the Delaware and Raritan Bay and Atlantic Ocean shorefronts, prime fishing areas do occur throughout the coastal zone.

FINFISH MIGRATORY PATHWAYS, N.J.A.C. 7:1E-1.8(a)9

AREA: Finfish migratory pathways, as defined in N.J.A.C. 7:7E-3.5(a).

ENVIRONMENTAL IMPORTANCE: Finfish migratory pathways are waterways serving as passages to and from spawning areas for various species of fish. They are necessary for the propagation of the species using the migratory pathways. The three most important species in New Jersey are striped bass, shad and herring.

CITATIONS: N.J.A.C. 7:7E-3.5(a) states that finfish migratory pathways are waterways (rivers, streams, creeks, bays, inlets) which can be determined to serve as passageways for diadromous fish to or from seasonal spawning areas, including juvenile anadromous fish which migrate in autumn and those listed by H.E. Zich (1977) "New Jersey Anadromous Fish Inventory" NJDEP Miscellaneous Report No. 41, and including those portions of the Hudson and Delaware Rivers within the coastal zone boundary.

Species of concern include: alewife or river herring (*Alosa pseudoharengus*), blueback herring (*Alosa sapidissima*), American shad (*Alosa aspidissima*), striped bass (*Monroe saxatilis*), Atlantic sturgeon (*Acipenser oxyrinchus*), Shortnose sturgeon (*Acipenser brevirostrum*) and American eel (*Anguilla rostrata*).

SUBMERGED VEGETATION HABITAT, N.J.A.C. 7:1E-1.8(a)10

AREA: Submerged vegetation habitat, as defined in N.J.A.C. 7:7E-3.6(a).

ENVIRONMENTAL IMPORTANCE: Water areas supporting various species of submerged plants include shipwrecks, artificial reefs, sites of known vessel remains, or similar structures, and shallow water. New Jersey's estuarine waters are relatively shallow, rich in nutrients and highly productive. The submerged vegetation of these shallow habitats serve important functions as suspended sediment traps, important winter forage for migratory waterfowl, and nursery areas for juvenile finfish, bay scallops and blue crabs. In addition, seagrasses absorb wave energy and root networks help stabilize silty bay bottoms.

CITATIONS: N.J.A.C. 7:7E-3.6 states that a submerged vegetation special area consists of water areas supporting or documented as previously supporting rooted, submerged vascular plants such as widgeon grass (*Ruppia maritima*), sago pondweed (*Potamogeton pectinatus*), horned pondweed (*Zannichellia palustris*) and eelgrass (*Zostera marina*). In New Jersey, submerged vegetation is most prevalent in the shallow portions of the Navesink, Shrewsbury, Manasquan and Metedeconk Rivers, and in Barnegat, Manahawkin and Little Egg Harbor Bays. Other submerged vegetation species in lesser quantities include, but are not limited to, the following: water weed (*Elodea nuttalli*), *Eriocaulon parkeri*, *Liaeopsis chinesis*, *Naja flexilis*, *Nuphar variegatum*, *Potamogeton crispus*, *Potamogeton epihydrus*, *Potamogeton perfoliatus*, *Potamogeton pusillus*, *Scripus subterminalis* and *Vallisneria americana*. Detailed maps of the distribution of the above species for New Jersey, and a method of delineation, are available from the Department in the New Jersey Submerged Aquatic Vegetation Distribution Atlas (Final Report), February, 1980, conducted by Earth Satellite Corporation and also on "Eelgrass Inventory" maps prepared by the Division of Fish, Game and Wildlife, Bureau of Shellfisheries, 1983. If the Department is presented with clear and convincing evidence that a part of its mapped habitat lacks the physical characteristics necessary for supporting or continuing to support the documented submerged vegetation species, such a site would be excluded from the habitat definition.

SHELLFISH HARVESTING WATERS, N.J.A.C. 7:1E-1.8(a)11

AREA: Shellfish waters as defined in N.J.A.C. 7:9B-1.4.

ENVIRONMENTAL IMPORTANCE: Shellfish waters are estuarine bay and river bottoms which are potentially productive for important species, including those that are commercially valuable, recreationally valuable, threatened or endangered, critical to the organization and/or maintenance of the ecosystem, or other species necessary in the food web. These species include hard clams, soft clams, eastern oysters, bay scallops, or blue mussels. These areas are of economic importance in New Jersey.

CITATIONS: N.J.A.C. 7:9B-1.4 defines shellfish waters to mean waters classified as Approved, Seasonally Approved, Special Restricted, Seasonally Special Restricted or Condemned that support or possess the potential to support shellfish which are within the Coastal Area Facility Review Act (CAFRA) zone as delineated in 1973, excluding:

1. The Cohansey River upstream of Brown's Run;
2. The Maurice River upstream of Route 548;
3. The Great Egg Harbor River upstream of Powell Creek;
4. The Tuckahoe River upstream of Route 50;
5. The Mullica River upstream of the Garden State Parkway

plus the adjacent areas between Route 35 (from its juncture with the CAFRA zone just north of Red Bank to its juncture with the CAFRA zone just south of Keyport) and the CAFRA zone and the area from the CAFRA zone on the south northwesterly along Route 35 to the northern shore of the Raritan River, then easterly along the northern shore of the Raritan River to the southeast point of Perth Amboy, then due east to the New Jersey jurisdictional limit, and seaward along the jurisdictional limit to the Atlantic Ocean.

FOREST AREAS, N.J.A.C. 7:1E-1.8(a)12

AREA: Forest areas, including prime forestland and unique forestland.

ENVIRONMENTAL IMPORTANCE: Prime forestland is land capable of growing 85 cubic feet of timber per acre per year. Unique forestland is land not qualifying as prime on the basis of cubic foot growth but that is growing sustained yields of specific high value species.

These areas are of economic, cultural, and ecological importance. They provide habitat for a wide variety of species, absorb carbon dioxide and other pollutants from the air, and generate oxygen.

HABITAT FOR FEDERAL AND STATE ENDANGERED OR THREATENED PLANT AND ANIMAL SPECIES, N.J.A.C. 7:1E-1.8(a)13

AREA: Habitat for Federal and State endangered or threatened plant and animal species, as defined in N.J.A.C. 7:7E-3.38.

ENVIRONMENTAL IMPORTANCE: These species and their habitat must be protected in the event of a discharge, since contamination could result in the loss of the entire population of a given species in New Jersey. Extinction represents a loss of biodiversity, which would adversely affect education, research and the interrelationship of all living creatures within the ecosystem.

The Department has mapped areas as endangered or threatened wildlife species habitat on the Department's Landscape Maps of Habitat for Endangered, Threatened and Other Priority Wildlife (known as Landscape Maps). Buffer areas, which are part of the endangered or threatened wildlife species habitat, may extend beyond the mapped areas. These Landscape Maps, with a listing of the endangered and threatened species within a specific area, are available from the Department's Division of Fish and Wildlife, Endangered and Nongame Species Program at the Division's web address, <http://www.nj.gov/dep/fgw>. Information on the areas mapped as endangered or threatened plant species habitat on the Department's Landscape Maps and the occurrence of endangered or threatened plant species habitat is available from the Department's Office of Natural Lands Management, Natural Heritage Database at PO Box 404, Trenton, New Jersey 08625-0404.

CITATIONS: N.J.A.C. 7:7E-3.38 describes endangered species habitat as those areas known to be inhabited on a seasonal or permanent basis by or to be critical at any stage in the life cycle of any wildlife (fauna) or vegetation (flora) identified as "endangered" or "threatened" species on official Federal or State lists of endangered or threatened species, or under active consideration for State or Federal listing. It also includes a sufficient buffer area to insure survival of the population of the species. This buffer is dependent on the range of the species.

The federal definition of "endangered species" is any species which is in danger of extinction throughout all or a significant portion of its range other than a species of the Class Insecta determined to constitute a pest whose protection would present an overwhelming and overriding risk to man. The full federal endangered and threatened wildlife list can be found at 50 CFR 17.11(h).

The State definition of "wildlife" from N.J.S.A. 23:2A is any wild mammal, bird, reptile, amphibian, fish, mollusk, crustacean or other wild animal or any part, product, egg or offspring or the dead body or parts thereof. The term "plant" means any member of the plant kingdom, including seeds, roots and other parts thereof. The term "species" includes any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature.

The State definition of "endangered", found in the New Jersey Endangered and Nongame Species Conservation Act, N.J.S.A. 23:2A, is any species or subspecies of wildlife whose

prospects of survival or recruitment are in jeopardy or are likely within the foreseeable future to become so due to any of the following factors:

1. the destruction, drastic modification, or severe curtailment of its habitat,
2. its over-utilization for scientific, commercial or sporting purposes,
3. the effect on it of disease, pollution, or predation,
4. other natural or manmade factors affecting its prospects of survival or recruitment within the State, or
5. any combination of the foregoing factors. The term also includes any species or subspecies of wildlife appearing on any Federal endangered species list.

The term "threatened species" means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

The Department is responsible for the promulgation of the official Endangered and Threatened Wildlife lists pursuant to the Endangered and Non-Game Species Conservation Act, N.J.S.A. 23:2A *et seq.* These lists include wildlife species that are endangered and threatened in New Jersey as well as wildlife species officially listed as endangered or threatened pursuant to the Endangered Species Act of 1973, 16 U.S.C.1531 *et seq.* These lists are included in this guidance document. However, to obtain a copy of the most current Endangered and Threatened Wildlife lists, please contact the Department, Division of Fish and Wildlife, Endangered and Nongame Species Program at the Division's web address, <http://www.nj.gov/dep/fgw>, or by writing to the Division at PO Box 400, Trenton, New Jersey 08625-0400.

The Department is also responsible for promulgation of the official Endangered Plant Species List pursuant to N.J.S.A. 13:1B-15. The Endangered Plant Species List includes plant species determined by the Department to be endangered in the State as well as plant species officially listed as endangered or threatened or under active consideration for Federal listing as Endangered or Threatened. This list is also included in this guidance document. However, to obtain the most current Endangered Plant Species List, please contact the Department, Division of Parks and Forestry, Office of Natural Land Management, PO Box 404, Trenton, NJ 08625-0404 or it can be obtained on line at <http://www.nj.gov/dep/parksandforests/natural/heritage>.

STATE LIST OF ENDANGERED WILDLIFE SPECIES (3/11/04)

Federal endangered or threatened species below have been marked with an asterisk (*).

Common Name

Scientific Name

FISH

Shortnose Sturgeon*

Acipenser brevirostrum

AMPHIBIANS

Blue-spotted Salamander
Eastern Tiger Salamander
Southern Gray Treefrog

Ambystoma laterale
Ambystoma tigrinum
Hyla chrysocelis

REPTILES

Atlantic Loggerhead Turtle*
Bog Turtle*
Timber Rattlesnake
Atlantic Leather-back Turtle*
Corn Snake
Atlantic Hawksbill Turtle*
Atlantic Ridley Turtle*
Queen Snake

Caretta caretta
Clemmys muhlenbergii
Crotalus h. horridus
Dermochelys coriacea
Elaphe g. guttata
Eretmochelys imbricata
Lepidochelys kempii
Regina septemvittata

BIRDS

Northern Goshawk
Henslow's Sparrow
Short-eared Owl
Upland Sandpiper
American Bittern

Accipiter gentilis (Breeding pop.)
Ammodramus henslowii
Asio flammeus (Breeding pop.)
Bartramia longicauda
Botaurus lentiginos (Breeding pop.)

Red-shouldered Hawk
Piping Plover*
Northern Harrier
Sedge Wren
Peregrine Falcon
Bald Eagle*

Buteo lineatus (Breeding pop.)
Charadrius melodus
Circus cyaneus (Breeding pop.)
Cistothorus platensis
Falco peregrinus
Haliaeetus leucocephalus (Breeding pop.)

Loggerhead Shrike
Pied-billed Grebe
Vesper Sparrow

Lanius ludovicianus
Podilymbus podiceps
Pooecetes gramineus (Breeding pop.)

Common Name

Scientific Name

BIRDS

Black Skimmer
Least Tern
Roseate Tern*

Rynchops niger (Breeding pop.)
Sterna antillarum
Sterna dougallii

MAMMALS

Black Right Whale*
Blue Whale*
Fin Whale*
Sei Whale*
Bobcat
Humpback Whale*
Indiana Bat*
Allegheny Woodrat
Sperm Whale*

Balaena glacialis
Balaenoptera musculus
Balaenoptera physalus
Balaenoptera borealis
Lynx rufus
Megaptera novaeangliae
Myotis sodalis
Neotoma floridana magister
Physeter macrocephalus

INVERTEBRATES

Dwarf Wedgemussel*
Brook Floater (mussel)
Arogos Skipper (butterfly)
Northeastern Beach Tiger Beetle*
Green Floater (mussel)
Bronze Copper
Mitchell's Satyr (butterfly)*
American Burying Beetle*
Appalachian Grizzled Skipper (butterfly)

Alasmidonta heterodon
Alasmidonta varicosa
Atrytone arogos arogos
Cincindela d. dorsalis
Lasmigona subviridis
Lycaena hyllus
Neonympha m. mitchellii
Nicrophorus mericanus
Pyrgus wyandot

STATE LIST OF THREATENED WILDLIFE SPECIES (3/11/04)

Federal endangered or threatened species below have been marked with an asterisk (*).

Common Name

Scientific Name

AMPHIBIANS

Long-tailed Salamander	<i>Eurycea longicauda</i>
Pine Barrens Treefrog	<i>Hyla andersonii</i>
Eastern Mud Salamander	<i>Pseudotriton montanus</i>

REPTILES

Wood Turtle	<i>Clemmys insculpta</i>
Atlantic Green Turtle*	<i>Chelonia mydas</i>
Northern Pine Snake	<i>Pituophis m. melanoleucus</i>

BIRDS

Cooper's Hawk	<i>Accipiter cooperii</i>
Grasshopper Sparrow	<i>Ammodramus savannarum</i> (Breeding pop.)
Long-eared Owl	<i>Asio otus</i>
Red-shouldered Hawk	<i>Buteo lineatus</i> (Non-breeding pop.)
Red Knot	<i>Calidris canutus</i> (Breeding pop.)
Bobolink	<i>Dolichonyx oryzivorus</i> (Breeding pop.)
Bald Eagle*	<i>Haliaeetus leucocephalus</i> (Non-breeding pop.)
Black Rail	<i>Laterallus jamaicensis</i>
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>
Yellow-crowned Night Heron	<i>Nyctanassa violaceus</i>
Black-crowned Night Heron	<i>Nycticorax nycticorax</i> (Breeding pop.)
Osprey	<i>Pandion haliaetus</i> (Breeding pop.)
Savannah Sparrow	<i>Passerculus sandwichensis</i> (Breeding pop.)
Vesper Sparrow	<i>Pooecetes gramineus</i> (Non-breeding pop.)
Black Skimmer	<i>Rynchops niger</i> (Non-breeding pop.)
Barred Owl	<i>Strix varia</i>

INVERTEBRATES

Triangle Floater (mussel)	<i>Alasmidonta undulata</i>
Silver-bordered Fritillary (butterfly)	<i>Bolaria selene myrina</i>
Frosted Elfin (butterfly)	<i>Callophrys irus</i>
Yellow Lampmussel (mussel)	<i>Lampsilis cariosa</i>

Common Name

Scientific Name

INVERTEBRATES

Eastern Lampmussel (mussel)

Lampsilis radiata

Tidewater Mucket (mussel)

Leptodea ochracea

Eastern Pondmussel (mussel)

Ligumia nasuta

Checkered White (butterfly)

Pontia protodice

STATE LIST OF ENDANGERED PLANT SPECIES (6/1/05)

<u>Scientific Name</u>	<u>Common Name</u>
<i>Acorus americanus</i>	American sweetflag
<i>Actaea rubra</i> var. <i>rubra</i>	red baneberry
<i>Adlumia fungosa</i>	climbing fumitory
<i>Aeschynomene virginica</i>	sensitive joint-vetch
<i>Agalinis auriculata</i>	ear-leaf false foxglove
<i>Agalinis fasciculata</i>	Pine Barren foxglove
<i>Agalinis pauperula</i> var. <i>pauperula</i>	small-flower false foxglove
<i>Agastache nepetoides</i>	yellow giant-hyssop
<i>Agastache scrophulariifolia</i>	purple giant-hyssop
<i>Agrimonia microcarpa</i>	small-fruit grooveburr
<i>Agrostis geminata</i>	ticklegrass
<i>Alisma triviale</i>	large water-plantain
<i>Alopecurus aequalis</i> var. <i>aequalis</i>	short-awn meadow-foxtail
<i>Alopecurus carolinianus</i>	tufted meadow-foxtail
<i>Amaranthus pumilus</i>	sea-beach amaranth
<i>Amelanchier humilis</i>	low service-berry
<i>Amelanchier sanguinea</i>	round-leaf service-berry
<i>Amelanchier stolonifera</i>	running service-berry
<i>Amianthium muscitoxicum</i>	fly poison
<i>Ammannia latifolia</i>	Koehn's tooth-cup
<i>Andromeda glaucophylla</i>	bog rosemary
<i>Andropogon glomeratus</i> var. <i>hirsutior</i>	hairy beardgrass
<i>Andropogon gyrans</i>	Elliott's beardgrass
<i>Andropogon ternarius</i> var. <i>ternarius</i>	silvery beardgrass
<i>Anemone canadensis</i>	Canada anemone
<i>Anemone cylindrica</i>	long-headed anemone
<i>Anemone virginiana</i> var. <i>alba</i>	riverbank anemone
<i>Angelica venenosa</i>	hairy angelica
<i>Antennaria neglecta</i> var. <i>canadensis</i>	Canada pussytoes
<i>Aplectrum hyemale</i>	puttyroot
<i>Arabis drummondii</i>	Drummond's rockcress
<i>Arabis hirsuta</i> var. <i>pyncocarpa</i>	western hairy rockcress
<i>Arceuthobium pusillum</i>	dwarf mistletoe
<i>Arenaria stricta</i>	rock sandwort
<i>Arethusa bulbosa</i>	dragon mouth
<i>Arisaema triphyllum</i> ssp. <i>stewardsonii</i>	northern jack-in-the-pulpit
<i>Aristida dichotoma</i> var. <i>curtissii</i>	Curtiss' three-awn grass
<i>Aristida lanosa</i>	woolly three-awn grass
<i>Aristida virgata</i>	wand-like three-awn grass
<i>Aristolochia serpentaria</i>	Virginia snakeroot
<i>Armoracia lacustris</i>	lake water-cress
<u>Scientific Name</u>	<u>Common Name</u>

<i>Arnica acaulis</i>	leopardbane
<i>Arnoglossum muehlenbergii</i>	Great Indian plantain
<i>Artemisia campestris</i> ssp. <i>caudata</i>	beach wormwood
<i>Asarum canadense</i> var. <i>acuminatum</i>	long-tipped wild ginger
<i>Asclepias lanceolata</i>	smooth orange milkweed
<i>Asclepias rubra</i>	red milkweed
<i>Asclepias variegata</i>	white milkweed
<i>Asclepias verticillata</i>	whorled milkweed
<i>Asimina triloba</i>	pawpaw
<i>Asplenium bradleyi</i>	Bradley's spleenwort
<i>Asplenium montanum</i>	mountain spleenwort
<i>Asplenium pinnatifidum</i>	lobed spleenwort
<i>Asplenium ruta-muraria</i> var. <i>cryptolepis</i>	wall-rue
<i>Aster borealis</i>	rush aster
<i>Aster concolor</i>	eastern silvery aster
<i>Aster ericoides</i> var. <i>ericoides</i>	white heath aster
<i>Aster ericoides</i> var. <i>prostratus</i>	prostrate white heath aster
<i>Aster firmus</i>	shining aster
<i>Aster novi-belgii</i> var. <i>elodes</i>	marsh New York aster
<i>Aster praealtus</i>	willow-leaved aster
<i>Aster prenanthoides</i>	crooked-stem aster
<i>Aster radula</i>	low rough aster
<i>Aster tradescantii</i>	Tradescant's aster
<i>Aster urophyllus</i>	arrow-leaf aster
<i>Astragalus canadensis</i> var. <i>canadensis</i>	Canadian milk-vetch
<i>Athyrium pycnocarpon</i>	glade fern
<i>Atriplex subspicata</i>	orache
<i>Betula papyrifera</i> var. <i>papyrifera</i>	paper birch
<i>Betula pumila</i> var. <i>pumila</i>	swamp birch
<i>Bidens beckii</i>	water-marigold
<i>Bidens bidentoides</i>	estuary burr-marigold
<i>Bidens eatonii</i>	Eaton's bur-marigold
<i>Bidens mitis</i>	small-fruit beggar-ticks
<i>Boltonia asteroides</i> var. <i>asteroides</i>	aster-like boltonia
<i>Boltonia asteroides</i> var. <i>glastifolia</i>	southern boltonia
<i>Botrychium lanceolatum</i> var. <i>angustisegmentum</i>	lance-leaf moonwort
<i>Botrychium multifidum</i>	leathery grape fern
<i>Botrychium oneidense</i>	blunt-lobe grape fern
<i>Botrychium simplex</i> var. <i>laxifolium</i>	upland least moonwort
<i>Botrychium simplex</i> var. <i>simplex</i>	least moonwort
<i>Botrychium simplex</i> var. <i>tenebrosum</i>	slender least moonwort
<i>Bouteloua curtipendula</i>	side-oats gramma grass
<u>Scientific Name</u>	<u>Common Name</u>

Bromus kalmii	Kalm's brome
Buchnera americana	bluehearts
Cacalia atriplicifolia	pale indian plantain
Calamagrostis pickeringii	Pickering's reed grass
Calla palustris	wild calla
Callitriche palustris	marsh water-starwort
Calystegia sepium ssp. appalachiana	Appalachian bindweed
Calystegia sepium ssp. erratica	occluded bindweed
Calystegia spithamea	erect bindweed
Cardamine angustata	slender toothwort
Cardamine diphylla	two-leaf toothwort
Cardamine douglassii	purple bittercress
Cardamine longii	Long's bittercress
Cardamine maxima	large toothwort
Cardamine pratensis var. palustris	meadow cuckoo-flower
Cardamine rotundifolia	round-leaf bittercress
Carex aggregata	glomerate sedge
Carex albursina	White Bear Lake sedge
Carex alopecoidea	foxtail sedge
Carex amphibola var. amphibola	narrow-leaf sedge
Carex aquatilis	water sedge
Carex arctata	dropping wood sedge
Carex backii	Back's sedge
Carex bebbii	Bebb's sedge
Carex bicknellii var. bicknellii	Bicknell's sedge
Carex brunnescens	round-spike brownish sedge
Carex bushii	Bush's sedge
Carex buxbaumii	brown sedge
Carex canescens var. canescens	silvery sedge
Carex caroliniana	Carolina sedge
Carex cephaloidea	thin-leaf sedge
Carex conjuncta	soft fox sedge
Carex conoidea	field sedge
Carex crawei	Crawe's sedge
Carex crawfordii	Crawford's sedge
Carex cryptolepis	small yellow sedge
Carex cumulata	clustered sedge
Carex deweyana	Dewey's sedge
Carex diandra	lesser panicled sedge
Carex disperma	soft-leaf sedge
Carex eburnea	ebony sedge
Carex formosa	handsome sedge
Carex frankii	Frank's sedge
<u>Scientific Name</u>	<u>Common Name</u>
Carex haydenii	cloud sedge

Carex hitchcockiana	Hitchcock's sedge
Carex hyalinolepis	shore-line sedge
Carex jamesii	James' sedge
Carex jorii	cypress-swamp sedge
Carex lasiocarpa var. americana	American slender sedge
Carex laxiculmis var. copulata	coupled sedge
Carex leavenworthii	Leavenworth's sedge
Carex leptalea var. harperi	Harper's sedge
Carex leptoneuria	fine-nerve sedge
Carex limosa	mud sedge
Carex lonchocarpa	southern long sedge
Carex louisianica	Louisiana sedge
Carex lupuliformis	hop-like sedge
Carex meadii	Mead's sedge
Carex mesochorea	midland sedge
Carex mitchelliana	Mitchell's sedge
Carex oligocarpa	few-fruit sedge
Carex pallescens	pale sedge
Carex peckii	Peck's white-tinged sedge
Carex plantaginea	plantain-leaf sedge
Carex polymorpha	variable sedge
Carex prairea	prairie sedge
Carex pseudocyperus	cyperus-like sedge
Carex retrorsa	retorse sedge
Carex siccata	dry-spiked sedge
Carex silicea	seabeach sedge
Carex sterilis	dioecious sedge
Carex stipata var. maxima	large awl-fruit sedge
Carex tenera	quill sedge
Carex tuckermanii	Tuckerman's sedge
Carex typhina	cat-tail sedge
Carex utriculata	bottle-shaped sedge
Carex viridula ssp. viridula	green sedge
Carex willdenowii var. willdenowii	Willdenow's sedge
Castanea pumila	chinquapin
Castilleja coccinea	scarlet Indian-paintbrush
Celtis tenuifolia	dwarf hackberry
Centella erecta	erect coinleaf
Centrosema virginianum	spurred butterfly-pea
Ceratophyllum echinatum	spiny coontail
Cercis canadensis	redbud

Scientific Name

Common Name

Chaerophyllum procumbens var.
procumbens

spreading chervil

<i>Chamaelirium luteum</i>	devil's-bit
<i>Chasmanthium latifolium</i>	Indian wood-oats
<i>Cheilanthes lanosa</i>	hairy lipfern
<i>Chenopodium berlandieri</i> var. <i>macrocalycium</i>	large-calyx goosefoot
<i>Chenopodium pratericola</i>	narrow-leaf goosefoot
<i>Chenopodium rubrum</i>	red goosefoot
<i>Chenopodium simplex</i>	maple-leaf goosefoot
<i>Chenopodium standleyanum</i>	Stanley's goosefoot
<i>Chionanthus virginicus</i>	fringetree
<i>Cinna latifolia</i>	slender wood-reed
<i>Cirsium altissimum</i>	tall thistle
<i>Cirsium virginianum</i>	Virginia thistle
<i>Claytonia virginica</i> var. <i>hammondiae</i>	Hammond's yellow spring beauty
<i>Cleistes divaricata</i>	spreading pogonia
<i>Clematis occidentalis</i> var. <i>occidentalis</i>	purple clematis
<i>Clitoria mariana</i>	butterfly-pea
<i>Coeloglossum viride</i> var. <i>virescens</i>	long-bract green orchid
<i>Coelorachis rugosa</i>	wrinkled jointgrass
<i>Commelina erecta</i>	slender dayflower
<i>Conioselinum chinense</i>	hemlock-parsley
<i>Corallorhiza trifida</i>	early coralroot
<i>Corallorhiza wisteriana</i>	spring coralroot
<i>Corema conradii</i>	broom crowberry
<i>Coreopsis rosea</i>	rose-color coreopsis
<i>Cornus amomum</i> var. <i>schuetzeana</i>	pale dogwood
<i>Cornus canadensis</i>	bunchberry
<i>Cornus foemina</i>	stiff dogwood
<i>Crataegus calpodendron</i>	pear hawthorn
<i>Crataegus chrysocarpa</i> var. <i>chrysocarpa</i>	fireberry hawthorn
<i>Crataegus dodgei</i>	Dodge's hawthorn
<i>Crataegus holmesiana</i>	Holmes' hawthorn
<i>Crataegus pedicellata</i>	scarlet hawthorn
<i>Crataegus pennsylvanica</i>	Pennsylvania hawthorn
<i>Crataegus punctata</i>	dotted hawthorn
<i>Crataegus succulenta</i>	fleshy hawthorn
<i>Croton willdenowii</i>	elliptical rushfoil
<i>Cryptogramma stelleri</i>	slender rockbrake
<i>Cuphea viscosissima</i>	blue waxweed
<i>Cuscuta cephalanthii</i>	buttonbush dodder
<i>Cuscuta coryli</i>	hazel dodder
<u>Scientific Name</u>	<u>Common Name</u>
<i>Cuscuta indecora</i>	collared dodder
<i>Cuscuta polygonorum</i>	smartweed dodder
<i>Cynoglossum virginianum</i> var. <i>boreale</i>	northern wild comfrey

<i>Cynoglossum virginianum</i> var. <i>virginianum</i>	wild comfrey
<i>Cyperus engelmannii</i>	Engelmann's flat sedge
<i>Cyperus hystricinus</i>	bristly flat sedge
<i>Cyperus lancastriensis</i>	Lancaster flat sedge
<i>Cyperus plukenetii</i>	Plukenet's flat sedge
<i>Cyperus polystachyos</i>	coast flat sedge
<i>Cyperus pseudovegetus</i>	marsh flat sedge
<i>Cyperus refractus</i>	reflexed flat sedge
<i>Cyperus retrofractus</i>	rough flat sedge
<i>Cyperus schweinitzii</i>	Schweinitz's flat sedge
<i>Cyperus tenuifolius</i>	low spike flat sedge
<i>Cypripedium candidum</i>	small white lady's-slipper
<i>Cypripedium parviflorum</i> var. <i>makasin</i>	fen small yellow lady's-slipper
<i>Cypripedium reginae</i>	showy lady's-slipper
<i>Cystopteris protrusa</i>	lowland fragile fern
<i>Dalibarda repens</i>	robin-run-away
<i>Deschampsia caespitosa</i>	tufted hair grass
<i>Desmodium cuspidatum</i> var. <i>cuspidatum</i>	toothed tick-trefoil
<i>Desmodium humifusum</i>	trailing tick-trefoil
<i>Desmodium laevigatum</i>	smooth tick-trefoil
<i>Desmodium nuttallii</i>	Nuttall's tick trefoil G5 S3 HL
<i>Desmodium ochroleucum</i>	cream-flower tick-trefoil
<i>Desmodium pauciflorum</i>	few-flower tick-trefoil
<i>Desmodium sessilifolium</i>	sessile-leaf tick-trefoil
<i>Desmodium strictum</i>	pineland tick-trefoil
<i>Desmodium viridiflorum</i>	velvety tick-trefoil
<i>Dicentra canadensis</i>	squirrel-corn
<i>Dicentra eximia</i>	wild bleeding-heart
<i>Diodia virginiana</i>	larger buttonweed
<i>Dirca palustris</i>	leatherwood
<i>Doellingeria infirma</i>	cornel-leaf aster
<i>Draba reptans</i>	Carolina whitlow-grass
<i>Dryopteris celsa</i>	log fern
<i>Dryopteris clintoniana</i>	Clinton's woodfern
<i>Dryopteris goldiana</i>	Goldie's wood fern G4 S3 HL
<i>Echinochloa muricata</i> var. <i>microstachya</i>	small-spike rough barnyard Grass
<i>Echinodorus parvulus</i>	dwarf burrhead
<i>Elatine americana</i>	American waterwort
<i>Elatine minima</i>	small waterwort
<u>Scientific Name</u>	<u>Common Name</u>
<i>Eleocharis brittonii</i>	Britton's spike-rush
<i>Eleocharis compressa</i>	flat-stemmed spike-rush
<i>Eleocharis elliptica</i>	elliptic spike-rush
<i>Eleocharis equisetoides</i>	knotted spike-rush

<i>Eleocharis erythropoda</i>	bald spike-rush
<i>Eleocharis halophila</i>	salt-marsh spike-rush
<i>Eleocharis intermedia</i>	matted spike-rush
<i>Eleocharis melanocarpa</i>	black-fruit spike-rush
<i>Eleocharis minima</i>	small spike-rush
<i>Eleocharis pauciflora</i>	few-flower spike-rush
<i>Eleocharis tenuis</i> var. <i>verrucosa</i>	warty spike-rush
<i>Eleocharis tortilis</i>	twisted spike-rush
<i>Elephantopus carolinianus</i>	Carolina elephant's foot
<i>Ellisia nyctelea</i>	Aunt Lucy
<i>Elymus trachycaulus</i>	slender wheatgrass
<i>Elymus trachycaulus</i> ssp. <i>subsecundus</i>	one-sided wheatgrass
<i>Elymus trachycaulus</i> ssp. <i>trachycaulus</i>	slender wheatgrass
<i>Epilobium angustifolium</i> ssp. <i>circumvagum</i>	narrow-leaf fireweed
<i>Epilobium leptophyllum</i>	bog willowherb
<i>Epilobium strictum</i>	downy willowherb
<i>Equisetum pratense</i>	meadow horsetail
<i>Equisetum sylvaticum</i>	woodland horsetail
<i>Equisetum variegatum</i>	variegated horsetail
<i>Eragrostis frankii</i>	Frank's love grass
<i>Eragrostis hirsuta</i>	stout love grass
<i>Erechtites hieraciifolia</i> var. <i>megalocarpa</i>	large-fruit fireweed
<i>Eriocaulon parkeri</i>	Parker's pipewort
<i>Eriophorum gracile</i>	slender cotton-grass
<i>Eriophorum tenellum</i>	rough cotton-grass
<i>Eriophorum vaginatum</i> var. <i>spissum</i>	sheathed cotton-grass
<i>Eriophorum viridicarinatum</i>	thin-leaf cotton-grass
<i>Eryngium aquaticum</i> var. <i>aquaticum</i>	marsh rattlesnake-master
<i>Eryngium yuccifolium</i> var. <i>yuccifolium</i>	tall rattlesnake-master
<i>Euonymus atropurpurea</i> var. <i>atropurpurea</i>	wahoo
<i>Eupatorium album</i> var. <i>vaseyi</i>	Vasey's boneset
<i>Eupatorium altissimum</i>	tall boneset
<i>Eupatorium aromaticum</i> var. <i>aromaticum</i>	smaller white snakeroot
<i>Eupatorium capillifolium</i>	dog-fennel thoroughwort
<i>Eupatorium coelestinum</i>	mist-flower
<i>Eupatorium godfreyanum</i>	Godfrey's boneset
<i>Eupatorium hyssopifolium</i> var. <i>laciniatum</i>	Torrey's boneset
<i>Eupatorium resinosum</i>	pine barren boneset
<i>Eupatorium rotundifolium</i> var. <i>cordigerum</i>	heart-leaf boneset
<u>Scientific Name</u>	<u>Common Name</u>
<i>Eupatorium sessilifolium</i> var. <i>brittonianum</i>	Britton's upland boneset
<i>Euphorbia corollata</i>	flowering spurge
<i>Euphorbia marilandica</i>	Maryland spurge
<i>Euphorbia purpurea</i>	Darlington's glade spurge
<i>Filipendula rubra</i>	queen-of-the-prairie

<i>Fimbristylis caroliniana</i>	Carolina fimbry
<i>Fimbristylis castanea</i>	marsh fimbry
<i>Fimbristylis puberula</i> var. <i>puberula</i>	hairy fimbry
<i>Fraxinus profunda</i>	pumpkin ash
<i>Fuirena squarrosa</i>	hairy umbrella-sedge
<i>Galactia volubilis</i>	downy milk-pea
<i>Galium concinnum</i>	shining bedstraw
<i>Galium hispidulum</i>	coast bedstraw
<i>Galium labradoricum</i>	Labrador marsh bedstraw
<i>Galium palustre</i>	marsh bedstraw
<i>Galium trifidum</i>	small bedstraw
<i>Gaultheria hispidula</i>	creeping snowberry
<i>Gaura biennis</i> Biennial	beeblosom
<i>Gentiana andrewsii</i> var. <i>andrewsii</i>	fringed bottle gentian
<i>Gentiana autumnalis</i>	Pine Barren gentian
<i>Gentiana catesbaei</i>	Catesby's gentian
<i>Gentiana linearis</i>	narrow-leaf gentian
<i>Gentiana saponaria</i> var. <i>saponaria</i>	soapwort gentian
<i>Gentiana villosa</i>	striped gentian
<i>Gentianella quinquefolia</i> var. <i>quinquefolia</i>	stiff gentian
<i>Geum rivale</i>	chocolate-root
<i>Geum vernum</i>	spring avens
<i>Glaux maritima</i>	sea-milkwort
<i>Glyceria borealis</i>	small floating manna grass
<i>Glyceria grandis</i>	American manna grass
<i>Glyceria laxa</i>	northern manna grass
<i>Glyceria melicaria</i>	long manna grass
<i>Gnaphalium helleri</i>	small everlasting
<i>Gnaphalium macounii</i>	winged cudweed
<i>Goodyera tessellata</i>	checkered rattlesnake plantain
<i>Gratiola pilosa</i>	hairy hedge hyssop
<i>Gratiola virginiana</i>	round-fruit hedge-hyssop
<i>Gymnocarpium dryopteris</i>	oak fern
<i>Gymnopogon ambiguus</i>	bearded skeleton grass
<i>Gymnopogon brevifolius</i>	short-leaf skeleton grass
<i>Hasteola suaveolens</i>	sweet-scent Indian-plantain
<i>Helianthemum bicknellii</i>	hoary frostweed
<i>Heliopsis helianthoides</i> var. <i>scabra</i>	rough ox-eye
<u>Scientific Name</u>	<u>Common Name</u>
<i>Helonias bullata</i>	swamp-pink
<i>Hemicarpha micrantha</i>	small-flower halfchaff sedge
<i>Heteranthera multiflora</i>	bouquet mud-plantain
<i>Hieracium kalmii</i>	Canada hawkweed
<i>Hieracium marianum</i>	Maryland hawkweed
<i>Honckenya peploides</i> var. <i>robusta</i>	seabeach sandwort

Hottonia inflata	featherfoil
Houstonia longifolia	long-leaf summer bluet
Hybanthus concolor	green violet
Hydrastis canadensis	golden seal
Hydrocotyle prolifera	Canby's marsh-pennywort
Hydrocotyle ranunculoides	floating marsh-pennywort
Hydrocotyle verticillata var. verticillata	whorled marsh-pennywort
Hydrophyllum canadense	broad-leaf waterleaf
Hypericum adpressum	Barton's St. John's-wort
Hypericum ellipticum	pale St. John's-wort
Hypericum gymnanthum	clasping-leaf St. John's-wort
Hypericum majus	larger Canadian St. John's-wort
Hypericum prolificum	shrubby St. John's-wort
Hypericum pyramidatum	great St. John's-wort
Ilex montana	large-leaf holly
Isanthus brachiatus	false pennyroyal
Isoetes lacustris	lake quillwort
Isoetes melanopoda	black-based quillwort
Isoetes riparia var. riparia	shore quillwort
Isoetes tuckermanii	Tuckerman's quillwort
Isotria medeoloides	small whorled pogonia
Jeffersonia diphylla	twinleaf
Juncus articulatus	jointed rush
Juncus brachycarpus	short-fruit rush
Juncus brachycephalus	fen rush
Juncus brevicaudatus	narrow-panicle rush
Juncus caesariensis	New Jersey rush
Juncus coriaceous	awl-leaf rush
Juncus dudleyi	Dudley's rush
Juncus elliottii	Elliott's rush
Juncus greenei	Greene's rush
Juncus torreyi	Torrey's rush
Juniperus communis var. depressa	dwarf juniper
Kalmia polifolia	pale laurel
Krigia dandelion	potato dwarf-dandelion
Kuhnia eupatorioides	false boneset
Lactuca graminifolia var. graminifolia	grass-leaf lettuce
<u>Scientific Name</u>	<u>Common Name</u>
Lactuca hirsuta var. sanguinea	red-stem hairy lettuce
Lathyrus japonicus var. maritimus	smooth beach-pea
Lathyrus ochroleucus	cream vetchling
Lathyrus venosus	veiny vetchling
Lechea intermedia var. intermedia	large-pod pinweed
Lechea tenuifolia	narrow-leaf pinweed
Ledum groenlandicum	Labrador tea

<i>Lemna perpusilla</i>	minute duckweed
<i>Lemna trisulca</i>	star duckweed
<i>Lemna valdiviana</i>	pale duckweed
<i>Leptochloa fascicularis</i> var. <i>maritima</i>	long-awn sprangletop
<i>Lespedeza stuevei</i>	Stueve's downy bush-clover
<i>Liatris scariosa</i> var. <i>novae angliae</i>	northern blazing star
<i>Lilium philadelphicum</i> var. <i>philadelphicum</i>	wood lily
<i>Limosella subulata</i>	awl-leaf mudwort
<i>Linnaea borealis</i>	twin-flower
<i>Linum intercursum</i>	sandplain flax
<i>Linum sulcatum</i>	grooved yellow flax
<i>Listera australis</i>	southern twayblade
<i>Listera cordata</i>	heart-leaf twayblade
<i>Listera smallii</i>	Appalachian twayblade
<i>Lithospermum canescens</i>	hoary puccoon
<i>Lobelia boykinii</i>	Boykin's lobelia
<i>Lobelia canbyi</i>	Canby's lobelia
<i>Lobelia dortmanna</i>	water lobelia
<i>Lonicera canadensis</i>	American fly-honeysuckle
<i>Ludwigia brevipes</i>	Tucker's Island primrose-willow
<i>Ludwigia hirtella</i>	hairy primrose-willow
<i>Ludwigia linearis</i>	narrow-leaf primrose-willow
<i>Lupinus perennis</i> var. <i>occidentalis</i>	hairy sundial lupine
<i>Lupinus perennis</i> var. <i>perennis</i>	sundial lupine
<i>Luzula acuminata</i>	hairy woodrush
<i>Lycopodiella inundata</i>	northern bog club-moss
<i>Lycopodium annotinum</i>	stiff clubmoss
<i>Lycopodium hickeyi</i>	Hickey's ground-pine
<i>Lycopus americanus</i> var. <i>longii</i>	Long's bugleweed
<i>Lycopus rubellus</i>	stalked water-hoarhound
<i>Lygodium palmatum</i>	climbing fern
<i>Lysimachia hybrida</i>	lowland loosestrife
<i>Lysimachia lanceolata</i>	lance-leaf loosestrife
<i>Lysimachia thyrsoflora</i>	tufted loosestrife
<i>Lythrum alatum</i> var. <i>alatum</i>	winged loosestrife
<i>Lythrum lineare</i>	narrow-leaf loosestrife
<u>Scientific Name</u>	<u>Common Name</u>
<i>Maianthemum canadense</i> var. <i>interius</i>	western false lily-of-the-valley
<i>Malaxis bayardii</i>	Bayard Long's adder's-mouth
<i>Malaxis monophyllos</i>	white adder's-mouth
<i>Malaxis unifolia</i>	green adder's-mouth
<i>Malus angustifolia</i> var. <i>puberula</i>	spiny wild crabapple
<i>Melanthium virginicum</i>	Virginia bunchflower
<i>Menyanthes trifoliata</i>	buck-bean
<i>Micranthemum micranthemoides</i>	Nuttall's mudwort

<i>Milium effusum</i>	tall millet grass
<i>Mimulus alatus</i>	winged monkey-flower G5 S3 HL
<i>Mimulus moschatus</i> var. <i>moschatus</i>	muskflower
<i>Mitella prostrata</i>	creeping bishop's-cap
<i>Monarda clinopodia</i>	basil beebalm
<i>Monarda didyma</i>	oswego-tea
<i>Monarda media</i>	purple bergamot
<i>Muhlenbergia capillaris</i>	long-awn smoke grass
<i>Muhlenbergia glomerata</i>	eastern smoke grass
<i>Muhlenbergia sylvatica</i> var. <i>robusta</i>	large woodland dropseed
<i>Muhlenbergia sylvatica</i> var. <i>sylvatica</i>	woodland dropseed
<i>Muhlenbergia torreyana</i>	Pine Barren smoke grass
<i>Myrica gale</i>	sweetgale
<i>Myriophyllum heterophyllum</i>	variable-leaf water-milfoil
<i>Myriophyllum pinnatum</i>	cut-leaf water-milfoil
<i>Myriophyllum sibiricum</i>	common water-milfoil
<i>Myriophyllum tenellum</i>	slender water-milfoil
<i>Myriophyllum verticillatum</i>	whorled water-milfoil
<i>Najas guadalupensis</i> var. <i>guadalupensis</i>	southern water-nymph
<i>Narthecium americanum</i>	bog asphodel
<i>Nelumbo lutea</i>	American lotus
<i>Nuphar lutea</i> ssp. <i>rubrodisca</i>	red-disk yellow pond-lily
<i>Nuphar microphyllum</i>	small yellow pond lily
<i>Nymphaea odorata</i> ssp. <i>tuberosa</i>	tuberous white water-lily
<i>Nymphoides cordata</i>	floatingheart
<i>Obolaria virginica</i>	Virginia pennywort
<i>Oenothera humifusa</i>	sea-wide evening primrose
<i>Oenothera oakesiana</i>	Oakes' evening-primrose
<i>Oenothera villosa</i> ssp. <i>villosa</i>	hairy evening-primrose
<i>Oldenlandia uniflora</i>	clustered-bluets
<i>Onosmodium virginianum</i>	Virginia false-gromwell
<i>Ophioglossum pusillum</i>	northern adder's-tongue
<i>Ophioglossum vulgatum</i> var. <i>pycnostichum</i>	southern adder's tongue
<i>Orthilia secunda</i>	sidebells
<i>Oryzopsis asperifolia</i>	white-grained mountain ricegrass
<u>Scientific Name</u>	<u>Common Name</u>
<i>Oryzopsis pungens</i>	slender mountain ricegrass
<i>Osmunda cinnamomea</i> var. <i>glandulosa</i>	glandular cinnamon fern
<i>Panax quinquefolius</i>	American ginseng
<i>Panicum aciculare</i>	bristling panic grass
<i>Panicum acuminatum</i> var. <i>acuminatum</i>	Walter Benner's panic grass
<i>Panicum amarum</i> var. <i>amarulum</i>	southern seabeach grass
<i>Panicum boreale</i>	northern panic grass
<i>Panicum dichotomum</i> var. <i>roanokense</i>	bluish panic grass
<i>Panicum dichotomum</i> var. <i>yadkinense</i>	spotted-sheath panic grass

<i>Panicum flexile</i>	wiry panic grass
<i>Panicum gattingeri</i>	Gattinger's witch grass
<i>Panicum hemitomon</i>	maiden-cane
<i>Panicum hirstii</i>	Hirst Brothers' panic grass
<i>Panicum leucothrix</i>	rough panic grass
<i>Panicum longiligulatum</i>	coastal-plain panic grass
<i>Panicum oligosanthos</i> var. <i>oligosanthos</i>	few-flower panic grass
<i>Panicum oligosanthos</i> var. <i>scribnerianum</i>	Scribner's panic grass
<i>Panicum rigidulum</i> var. <i>condensum</i>	dense panic grass
<i>Panicum scabriusculum</i>	sheathed panic grass
<i>Panicum tenue</i>	white-edge panic grass
<i>Panicum wrightianum</i>	Wright's panic grass
<i>Panicum xanthophysum</i>	slender panic grass
<i>Paronychia montana</i>	mountain nailwort
<i>Paspalum dissectum</i>	mudbank crown grass
<i>Paspalum floridanum</i>	Florida crown grass
<i>Paspalum setaceum</i> var. <i>ciliatifolium</i>	ciliate-leaf crown grass
<i>Paspalum setaceum</i> var. <i>psammophilum</i>	prostrate crown grass
<i>Pedicularis lanceolata</i>	swamp lousewort
<i>Pellaea glabella</i> var. <i>glabella</i>	smooth cliffbrake
<i>Penstemon laevigatus</i>	smooth beardtongue
<i>Phaseolus polystachios</i> var. <i>polystachios</i>	wild kidney bean
<i>Phegopteris connectilis</i>	northern beech fern
<i>Phlox divaricata</i>	wild blue phlox
<i>Phlox maculata</i> var. <i>maculata</i>	spotted phlox
<i>Phlox pilosa</i>	downy phlox
<i>Phoradendron leucarpum</i>	American mistletoe
<i>Phyla lanceolata</i>	fog fruit
<i>Physalis grisea</i>	strawberry-tomato
<i>Physalis pubescens</i> var. <i>integrifolia</i>	husk-tomato
<i>Picea rubens</i>	red spruce
<i>Pinus pungens</i>	table mountain pine
<i>Pinus resinosa</i>	red pine
<i>Pinus serotina</i>	pond pine
<u>Scientific Name</u>	<u>Common Name</u>
<i>Pinus taeda</i>	loblolly pine
<i>Pityopsis falcata</i>	sickle-leaf golden-aster
<i>Plantago major</i> var. <i>scopulorum</i>	salt-marsh plantain
<i>Plantago maritima</i> var. <i>juncooides</i>	seaside plantain
<i>Plantago pusilla</i>	dwarf plantain
<i>Platanthera ciliaris</i>	yellow fringed orchid
<i>Platanthera cristata</i>	crested yellow orchid
<i>Platanthera flava</i> var. <i>flava</i>	southern rein orchid
<i>Platanthera flava</i> var. <i>herbiola</i>	tubercled rein orchid
<i>Platanthera grandiflora</i>	large purple fringed orchid

Platanthera hookeri	Hooker's orchid
Platanthera hyperborea var. hyperborea	leafy northern green orchid
Platanthera integra	yellow fringeless orchid
Platanthera nivea	snowy orchid
Platanthera orbiculata	round-leaf orchid
Platanthera peramoena	purple fringeless orchid
Platanthera psycodes	purple fringed orchid
Pluchea camphorata	camphorweed
Pluchea foetida	stinking fleabane
Poa autumnalis	flexuous spear grass
Poa languida	drooping spear grass
Poa saltuensis	old-pasture spear grass
Poa sylvestris	woodland spear grass
Podostemum ceratophyllum	threadfoot
Polanisia dodecandra ssp. dodecandra	clammy-weed
Polemonium reptans	Greek valerian
Polemonium vanbruntiae	Jacob's ladder
Polygala ambigua	loose-spike milkwort
Polygala incarnata	pink milkwort
Polygala mariana	Maryland milkwort
Polygala polygama	racemed milkwort
Polygala ramosa	low Pine Barren milkwort
Polygala senega	Seneca snakeroot
Polygonum buxiforme	Small's knotweed
Polygonum cilinode	fringed black-bindweed
Polygonum densiflorum	dense-flower knotweed
Polygonum erectum	erect knotweed
Polygonum glaucum	sea-beach knotweed
Polygonum hydropiperoides var. opelousanum	opelousas water-pepper
Polygonum setaceum var. setaceum	bristly smartweed
Polymnia uvedalia	bear's-foot
Populus heterophylla	swamp cottonwood
<u>Scientific Name</u>	<u>Common Name</u>

Porteranthus trifolius	Indian physic
Potamogeton alpinus	northern pondweed
Potamogeton confervoides	algae-like pondweed
Potamogeton illinoensis	Illinois pondweed
Potamogeton oakesianus	Oakes' pondweed
Potamogeton obtusifolius	blunt-leaf pondweed
Potamogeton praelongus	white-stem pondweed
Potamogeton robbinsii	Robbins' pondweed
Potamogeton vaginatus	sheathed pondweed
Potamogeton zosteriformis	eel-grass pondweed
Potentilla arguta var. arguta	tall cinquefoil

Potentilla palustris	marsh cinquefoil
Potentilla tridentata	three-toothed cinquefoil
Prenanthes autumnalis	Pine Barren rattlesnake-root
Prenanthes racemosa	smooth rattlesnake root
Proserpinaca intermedia	Mackenzie's mermaidweed
Prunus alleghaniensis	Allegheny plum
Prunus angustifolia	Chickasaw plum
Prunus pumila var. depressa	low sand cherry
Prunus pumila var. susquehanae	Appalachian cherry
Ptelea trifoliata	wafer ash
Puccinellia fasciculata	saltmarsh alkali grass
Pycnanthemum clinopodioides	basil mountain-mint
Pycnanthemum setosum	awned mountain-mint
Pycnanthemum torrei	Torrey's mountain-mint
Pyrola chlorantha	greenish-flower wintergreen
Quercus imbricaria	shingle oak
Quercus lyrata	overcup oak
Quercus michauxii	basket oak
Quercus muehlenbergii	yellow oak
Quercus nigra	water oak
Ranunculus allegheniensis	Allegheny mountain buttercup
Ranunculus ambiguus	water-plantain spearwort
Ranunculus cymbalaria	sea-side buttercup
Ranunculus fascicularis	early buttercup
Ranunculus flabellaris	yellow water buttercup
Ranunculus longirostris	long-beak water buttercup
Ranunculus micranthus	rock buttercup
Ranunculus pensylvanicus	bristly buttercup
Ranunculus pusillus var. pusillus	low spearwort
Ranunculus reptans	creeping spearwort
Ranunculus trichophyllus var. trichophyllus	thread-leaf water buttercup

Scientific Name

Common Name

Rhexia aristosa	awned meadowbeauty
Rhexia interior	showy meadowbeauty
Rhododendron atlanticum	dwarf azalea
Rhododendron canadense	rhodora
Rhododendron prinophyllum	mountain azalea
Rhynchospora capillacea	capillary beaked-rush
Rhynchospora cephalantha	large-head beaked-rush
Rhynchospora filifolia	thread-leaf beaked-rush
Rhynchospora globularis	coarse grass-like beaked-rush
Rhynchospora glomerata	clustered beaked-rush
Rhynchospora inundata	slender horned-rush
Rhynchospora knieskernii	Knieskern's beaked-rush

<i>Rhynchospora microcephala</i>	small-head beaked-rush
<i>Rhynchospora nitens</i>	short-beaked bald-rush
<i>Rhynchospora oligantha</i>	few-flower beaked-rush
<i>Rhynchospora pallida</i>	pale beaked-rush
<i>Rhynchospora rariflora</i>	rare-flower beaked-rush
<i>Rhynchospora scirpoides</i>	long-beak bald-rush
<i>Ribes cynosbati</i>	prickly gooseberry
<i>Ribes glandulosum</i>	skunk currant
<i>Ribes missouriense</i>	Missouri gooseberry
<i>Ribes triste</i>	swamp red currant
<i>Rosa blanda</i> var. <i>blanda</i>	smooth rose
<i>Rotala ramosior</i>	toothcup
<i>Rubus ascendens</i>	Clausen's dewberry
<i>Rubus canadensis</i>	smooth blackberry
<i>Rubus gnarus</i>	Pollock's mill blackberry
<i>Rubus longii</i>	Long's blackberry
<i>Rubus novocaesarius</i>	New Jersey dewberry
<i>Rubus originalis</i>	Cold Spring blackberry
<i>Rubus ostryifolius</i>	highbush blackberry
<i>Rubus pervarius</i>	Davis' dewberry
<i>Rubus recurvicaulis</i>	Blanchard's dewberry
<i>Rubus setosus</i>	bristly blackberry
<i>Rudbeckia fulgida</i>	orange coneflower
<i>Rudbeckia fulgida</i> var. <i>speciosa</i>	showy coneflower
<i>Ruellia caroliniensis</i>	Carolina petunia
<i>Ruellia strepens</i>	limestone petunia
<i>Rumex hastatulus</i>	Engelmann's Sorrel
<i>Sabatia campanulata</i>	slender marsh-pink
<i>Sabatia dodecandra</i> var. <i>dodecandra</i>	large marsh-pink
<i>Saccharum alopecuroidum</i>	silver plume grass
<i>Sacciolepis striata</i>	American cupscale
<u>Scientific Name</u>	<u>Common Name</u>
<i>Sagittaria australis</i>	southern arrowhead
<i>Sagittaria calycina</i> var. <i>calycina</i>	Mississippi arrowhead
<i>Sagittaria calycina</i> var. <i>spongiosa</i>	tidal arrowhead
<i>Sagittaria cuneata</i>	arum-leaf arrowhead
<i>Sagittaria filiformis</i>	narrow-leaf arrowhead
<i>Sagittaria subulata</i>	awl-leaf arrowhead
<i>Sagittaria teres</i>	slender arrowhead
<i>Salix candida</i>	hoary willow
<i>Salix lucida</i> ssp. <i>lucida</i>	shining willow
<i>Salix pedicellaris</i>	bog willow
<i>Salix serissima</i>	autumn willow
<i>Sanicula trifoliata</i>	large-fruit black-snakeroot
<i>Scheuchzeria palustris</i>	arrow-grass

Schizachne purpurascens	purple oats
Schizaea pusilla	curly grass fern
Schoenoplectus acutus var. acutus	hard-stem bulrush
Schoenoplectus novae-angliae	New England bulrush
Schoenoplectus smithii	Smith's club-rush
Schoenoplectus torreyi	Torrey's bulrush
Schwalbea americana	chaffseed
Scirpus atrocinctus	black-girdle woolgrass
Scirpus longii	Long's woolgrass
Scirpus maritimus	salt marsh bulrush
Scirpus microcarpus	barber pole bulrush
Scirpus pedicellatus	stalked woolgrass
Scirpus pendulus	reddish bulrush
Scleria pauciflora var. caroliniana	Carolina nut-rush
Scleria pauciflora var. pauciflora	papillose nut-rush
Scleria verticillata	whorled nut rush
Sclerolepis uniflora	bog buttons
Scutellaria leonardii	small skullcap
Scutellaria nervosa	veined skullcap
Sedum telephioides	Allegheny stonecrop
Selaginella rupestris	rock spike-moss
Senecio anonymus	Small's groundsel
Senecio pauperculus	balsam ragwort
Senecio tomentosus	woolly ragwort
Sesuvium maritimum	seabeach purslane
Setaria magna	giant fox-tail
Silene caroliniana var. pennsylvanica	wild-pink
Silene nivea	snowy campion
Sisyrinchium fuscatum	sand-plain blue-eyed grass
Sisyrinchium montanum	strict blue-eyed grass
<u>Scientific Name</u>	<u>Common Name</u>

Smilacina trifloia	three-leaf false Solomon's seal
Smilax hispida	bristly greenbrier
Smilax pseudochina	bamboo vine
Smilax pulverulenta	downy carrion-flower
Solidago elliotii	Elliott's goldenrod
Solidago hispida var. hispida	hairy goldenrod
Solidago rigida	prairie goldenrod
Solidago rugosa ssp. rugosa var. sphagnophila	summer goldenrod
Solidago speciosa var. speciosa	showy goldenrod
Solidago stricta	wand-like goldenrod
Solidago tarda	late goldenrod
Solidago uliginosa var. linoides	flax-leaf bog goldenrod
Solidago uliginosa var. uliginosa	bog goldenrod

<i>Sorbus americana</i>	American mountain-ash
<i>Sparganium angustifolium</i>	narrow-leaf burr-reed
<i>Sparganium chlorocarpum</i>	green-fruited bur-reed
<i>Sparganium minimum</i>	small burr-reed
<i>Sphagnum angustifolium</i>	sphagnum
<i>Sphagnum austinii</i>	sphagnum
<i>Sphagnum capillifolium</i>	sphagnum
<i>Sphagnum carolinianum</i>	sphagnum
<i>Sphagnum centrale</i>	sphagnum
<i>Sphagnum contortum</i>	sphagnum
<i>Sphagnum cyclophyllum</i>	sphagnum
<i>Sphagnum fuscum</i>	sphagnum
<i>Sphagnum macrophyllum</i>	sphagnum
<i>Sphagnum marcophyllum</i> var. <i>floridanum</i>	sphagnum
<i>Sphagnum majus</i> ssp. <i>norvigicum</i>	sphagnum
<i>Sphagnum perichaetiale</i>	sphagnum
<i>Sphagnum platyphyllum</i>	sphagnum
<i>Sphagnum portoricense</i>	sphagnum
<i>Sphagnum quinquefarium</i>	sphagnum
<i>Sphagnum riparium</i>	sphagnum
<i>Sphagnum squarrosum</i>	sphagnum
<i>Sphagnum strictum</i>	sphagnum
<i>Sphagnum subfulvum</i>	sphagnum
<i>Sphagnum subsecundum</i>	sphagnum
<i>Sphagnum subtile</i>	sphagnum
<i>Sphagnum tenellum</i>	sphagnum
<i>Sphagnum teres</i>	sphagnum
<i>Sphagnum warnstorffii</i>	sphagnum
<i>Sphenopholis pensylvanica</i>	swamp oats
<u>Scientific Name</u>	<u>Common Name</u>
<i>Spiraea alba</i> var. <i>alba</i>	narrow-leaf meadow-sweet
<i>Spiranthes laciniata</i>	lace-lip ladies'-tresses
<i>Spiranthes lucida</i>	shining ladies'-tresses
<i>Spiranthes ochroleuca</i>	yellowish nodding ladies'-tresses
<i>Spiranthes odorata</i>	fragrant ladies'-tresses
<i>Spiranthes tuberosa</i>	little ladies'-tresses
<i>Sporobolus neglectus</i>	puff-sheathed dropseed
<i>Stachys hyssopifolia</i>	hyssop hedge-nettle
<i>Stachys palustris</i> var. <i>homotricha</i>	hairy hedge-nettle
<i>Stachys tenuifolia</i>	smooth hedge-nettle
<i>Stellaria borealis</i>	boreal starwort
<i>Stellaria pubera</i>	star chickweed
<i>Streptopus amplexifolius</i>	white twisted-stalk
<i>Streptopus roseus</i>	rosy twisted-stalk
<i>Stylisma pickeringii</i> var. <i>pickeringii</i>	Pickering's morning-glory

<i>Stylosanthes biflora</i>	pencil-flower
<i>Suaeda calceoliformis</i>	American seablite
<i>Suaeda rollandii</i>	Roland's seablite
<i>Taxus canadensis</i>	American yew
<i>Teucrium canadense</i> var. <i>occidentale</i>	hairy germander
<i>Thaspium barbinode</i>	hairy-joint meadow-parsnip
<i>Thaspium trifoliatum</i> var. <i>trifoliatum</i>	purple meadow-parsnip
<i>Thuja occidentalis</i>	arborvitae
<i>Tiarella cordifolia</i>	foamflower
<i>Tipularia discolor</i>	cranefly orchid
<i>Tofieldia racemosa</i>	false asphodel
<i>Torreyochloa pallida</i> var. <i>fernaldii</i>	Fernald's false manna grass
<i>Toxicodendron pubescens</i>	poison-oak
<i>Tradescantia ohioensis</i>	Ohio spiderwort
<i>Triadenum fraseri</i>	Fraser's St. John's-wort
<i>Triadenum walteri</i>	Walter's St. John's-wort
<i>Trichomanes intricatum</i>	filmy fern
<i>Trichostema setaceum</i>	narrow-leaf bluecurls
<i>Tridens flavus</i> var. <i>chapmanii</i>	Chapman's redtop
<i>Trifolium reflexum</i>	buffalo clover
<i>Triglochin maritimum</i>	sea-side arrow-grass
<i>Trillium undulatum</i>	painted trillium
<i>Triosteum augustifolium</i>	narrow-leaf horse-gentian
<i>Triphora trianthophora</i>	three birds orchid
<i>Trollius laxus</i> ssp. <i>laxus</i>	spreading globe flower
<i>Ulmus thomasii</i>	rock elm
<i>Utricularia biflora</i>	two-flower bladderwort
<i>Utricularia gibba</i>	humped bladderwort
<u>Scientific Name</u>	<u>Common Name</u>
<i>Utricularia inflata</i>	large swollen bladderwort
<i>Utricularia intermedia</i>	flat-leaf bladderwort
<i>Utricularia minor</i>	lesser bladderwort
<i>Utricularia olivacea</i>	dwarf white bladderwort
<i>Utricularia purpurea</i>	purple bladderwort
<i>Utricularia resupinata</i>	reversed bladderwort
<i>Uvularia puberula</i> var. <i>nitida</i>	pine barren bellwort
<i>Vaccinium oxycoccos</i>	small cranberry
<i>Valerianella chenopodiifolia</i>	goose-foot cornsalad
<i>Valerianella radiata</i>	beaked cornsalad
<i>Valerianella umbilicata</i>	navel cornsalad
<i>Verbena simplex</i>	narrow-leaf vervain
<i>Vernonia glauca</i>	broad-leaf ironweed
<i>Veronica catenata</i>	sessile water-speedwell
<i>Viburnum alnifolium</i>	witch hobble
<i>Viburnum dentatum</i> var. <i>venosum</i>	veiny-leaf arrow-wood

<i>Viburnum opulus</i> var. <i>americanum</i>	highbush-cranberry
<i>Vicia americana</i> var. <i>americana</i>	American purple vetch
<i>Vicia caroliniana</i>	Carolina wood vetch
<i>Viola blanda</i> var. <i>palustriformis</i>	large-leaf white violet
<i>Viola brittoniana</i> var. <i>brittoniana</i>	Britton's coast violet
<i>Viola brittoniana</i> var. <i>pectinata</i>	cut-leaf coast violet
<i>Viola canadensis</i>	Canada violet
<i>Viola hirsutula</i>	southern wood violet
<i>Viola septentrionalis</i>	northern blue violet
<i>Vitis novae-angliae</i>	New England grape
<i>Vulpia elliotia</i>	squirrel-tail six-weeks grass
<i>Vulpia octoflora</i> var. <i>glauca</i>	slender six-weeks grass
<i>Waldsteinia fragarioides</i> var. <i>fragarioides</i>	barren-strawberry
<i>Wolffiella floridana</i>	sword bogmat
<i>Xyris caroliniana</i>	sand yellow-eyed grass
<i>Xyris fimbriata</i>	fringed yellow-eyed grass
<i>Xyris jupicai</i>	Richard's yellow-eyed grass
<i>Xyris montana</i>	northern yellow-eyed grass
<i>Zigadenus leimanthoides</i>	death-camus

FEDERAL AND STATE WILDERNESS AREAS, N.J.A.C. 7:1E-1.8(a)14

AREA: Federal and State wilderness areas, including areas within the Natural Areas System, which are designated in N.J.A.C. 7:5A-1.13, or in the State Register of Natural Areas pursuant to the Natural Areas System Act, N.J.S.A. 13:1B-15.12a *et seq.* and 15.4 *et seq.* and N.J.A.C. 7:5A-1.4, and preserved land held by the New Jersey Natural Lands Trust pursuant to the New Jersey Natural Lands Trust Act, N.J.S.A. 13:1B-15.119 *et seq.*

ENVIRONMENTAL IMPORTANCE: Federal and State wilderness areas are those that have retained their natural character, although not necessarily completely undisturbed, or have rare or vanishing species of plant and animal life, or have similar features of interest, which are worthy of preservation for present and future residents of the State. They provide recreational opportunities and are of both cultural and ecological importance.

CITATIONS: The Natural Areas System Act, N.J.S.A. 13:1B-15.12a, states that for inclusion in the natural areas system, it is not necessary that an area be wholly unmarked by man, but that the impact of man be not permanent, not seriously destructive of the area's potential for developing natural values, and not obtrusively apparent to the casual observer, and is of such character that the lessening of human impact will allow the land or water to recover natural values of interest. Lands subject to the noise of vehicular traffic and of commercial and industrial operations, and subject to air and water pollution as the result of the activities of man, may be designated as parts of the system if they lie on the perimeters of primary natural areas within the system, and if the purpose of their inclusion within the system is to protect or buffer the primary natural areas.

N.J.S.A. 13:1B-15.4 defines "natural areas" as areas of land or water which have retained their primeval character, although not necessarily completely natural and undisturbed, or having rare or vanishing species of plant and animal life or having similar features of interest which are worthy of preservation for the use of present and future residents of the State.

N.J.A.C. 7:5A-1.3 contains the following definitions:

"Natural area" means an area of land or water, owned in fee simple or held as a conservation easement by the Department, which has retained its natural character, although not necessarily completely undisturbed, or having rare or vanishing species of plant and animal life, or having similar features of interest, which are worthy of preservation for present and future residents of the State.

"Natural Areas System" means those lands designated as natural areas pursuant to the Natural Areas and the Natural Areas System rules, identified at N.J.A.C. 7:5A-1.13, and consisting of lands that serve as habitat for rare plant species or animal species, or both, or ecological communities representative of the State of New Jersey or the nation.

To be placed on the Register of Natural Areas, a site must be an endangered species habitat, a natural community, or a wildlife habitat. An endangered species habitat must be verified as supporting a significant, viable natural occurrence of one or more plant or animal species, or both, determined to be rare, threatened, or endangered in the State or the United States. A natural community supports a significant, viable example of a rare natural community or is an extremely high quality representative of other natural communities of New Jersey. Quality includes, but is not limited to, characteristics of structure, composition, age, size and degree of disturbance. A wildlife habitat provides spawning, breeding, nesting, resting, or feeding habitat which is highly significant for supporting resident or migratory wildlife, or both, of the State, the United States, or the world.

Interim classifications for natural areas, as found in N.J.A.C. 7:5A-1.7, fall into one of two categories:

1. Ecological reserve: an area managed to allow natural processes to proceed with little or no habitat manipulation;
2. Conservation preserve: an area where habitat manipulation is permissible in order to preserve a plant or animal species, community type, or ecosystem;

The following are designated in N.J.A.C. 7:5A-1.13 as components of the Natural Areas System:

Absegami Natural Area

Location: Bass River State Forest, Bass River Township, Burlington County

Management Objective: preservation of Atlantic white cedar and pine/oak communities, southern swamp habitat, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Bass River State Forest

Allamuchy Natural Area

Location: Allamuchy State Park, Allamuchy Township, Warren County, and Byram Township, Sussex County

Management Objective: preservation of a hardwood forest of significant size and successional fields and protection of a rare plant community

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Hopatcong State Park

Batsto Natural Area

Location: Wharton State Forest, Mullica Township, Atlantic County, and Washington and Shamong Townships, Burlington County

Management Objective: preservation of pitch pine lowland, Atlantic white cedar swamp, Pine Barrens bog, mixed pine-shrub oak barrens, savanna and other habitats, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Wharton State Forest

Bearfort Mountain Natural Area

Location: Wawayanda State Park, West Milford Township, Passaic County

Management Objective: preservation of scrub oak and hardwood swamp forests, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Wawayanda State Park

Bear Swamp East Natural Area

Location: Downe Township, Cumberland County

Management Objective: preservation of ecological communities and relationships, management of bald eagle nesting site and other known and potential endangered species habitat

Interim Classification: ecological reserve

Administering Agency: Division of Parks and Forestry, through Belleplain State Forest

Black River Natural Area

Location: Black River Wildlife Management Area, Chester and Washington Townships, Morris County

Management Objective: preservation of mesic, marsh, floodplain habitat, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Fish and Wildlife, through Whittingham Wildlife Management Area

Bull's Island Natural Area

Location: Bull's Island Recreation Area, Delaware Township, Hunterdon County

Management Objective: preservation of a northern floodplain habitat, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Delaware and Raritan Canal State Park

Bursch Sugar Maple Natural Area

Location: Hope and Knowlton Townships, Warren County

Management Objective: preservation of a northeastern hardwoods forest, and sugar maple/mixed hardwood community

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Jenny Jump State Forest

Cape May Point Natural Area

Location: Cape May Point State Park, Cape May Point Borough and Lower Township, Cape May County

Management Objective: preservation of freshwater marsh behind a coastal dune, habitat diversity for migratory birds, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Cape May Point State Park

Cape May Wetlands Natural Area

Location: Avalon Borough, Dennis and Middle Townships, Cape May County

Management Objective: preservation of tidal salt marsh ecosystem and rare species habitat

Interim Classification: ecological reserve

Administering Agency: Division of Parks and Forestry, through Cape May Point State Park

Cedar Swamp Natural Area

Location: Brendan T. Byrne State Forest, Woodland Township, Burlington County

Management Objective: preservation of southern swamp and floodplain habitat, Atlantic white cedar, red maple and pine/oak forest communities, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Brendan T. Byrne State Forest

Cheesequake Natural Area

Location: Cheesequake State Park, Old Bridge Township, Middlesex County

Management Objective: preservation of habitat diversity including hardwood forest, cedar swamp, mature white pine stand, freshwater swamp, Pine Barren outlier and salt marsh, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Cheesequake State Park

Cook Natural Area

Location: South Brunswick Township, Middlesex County

Management Objective: preservation of freshwater nontidal flood plain forest habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Delaware and Raritan Canal State Park

Dryden Kuser Natural Area

Location: High Point State Park, Montague and Wantage Townships, Sussex County

Management Objective: preservation of an inland high elevation Atlantic white cedar swamp, chestnut oak forest and associated forest communities, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through High Point State Park

Dunnfield Creek Natural Area

Location: Worthington State Forest, Pahaquarry Township, Warren County

Management Objective: preservation of a hemlock ravine, chestnut oak forest, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Worthington State Forest

East Plains Natural Area

Location: Stafford Forge Wildlife Management Area, Little Egg Harbor, Stafford and Eagleswood Townships, Ocean County

Management Objective: preservation and management of a globally rare dwarf pine plains community in the East Plains, a large occurrence of the state endangered broom crowberry, as well as other rare plant and animal species

Interim Classification: conservation preserve

Administering Agency: Division of Fish and Wildlife, through Stafford Forge Wildlife Management Area

Farny Natural Area

Location: Farny State Park, Rockaway Township, Morris County

Management Objective: preservation of northern mixed oak-hardwood forest, hardwood swamp forest, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Ringwood State Park

Great Bay Natural Area

Location: Little Egg Harbor Township, Ocean County

Management Objective: preservation of tidal salt marsh ecosystem and rare species habitat

Interim Classification: ecological reserve

Administering Agency: Division of Fish and Wildlife, through Assunpink Wildlife Management Area

Hacklebarney Natural Area

Location: Hacklebarney State Park, Chester and Washington Townships, Morris County, Tewksbury Township, Hunterdon County and Bedminster Township, Somerset County

Management Objective: preservation of a river ravine and northern hemlock/mixed hardwood forest, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Voorhees State Park

Island Beach Northern Natural Area

Location: Island Beach State Park, Berkeley Township, Ocean County

Management Objective: preservation of barrier island dune system, plant community associations, and rare species habitat

Interim Classification: ecological reserve

Administering Agency: Division of Parks and Forestry, through Island Beach State Park

Island Beach Southern Natural Area

Location: Island Beach State Park, Ocean and Berkeley Townships, Ocean County

Management Objective: preservation of barrier island dune system, saltwater marsh, freshwater bogs, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Island Beach State Park

Johnsonburg Natural Area

Location: Frelinghuysen Township, Warren County

Management Objective: preservation of a mixed hardwood forest

Interim Classification: ecological reserve

Administering Agency: Division of Parks and Forestry, through Jenny Jump State Forest

Ken Lockwood Gorge Natural Area

Location: Ken Lockwood Gorge Wildlife Management Area, Lebanon Township, Hunterdon County

Management Objective: preservation of hemlock/mixed hardwood forest with highly varied understory, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Fish and Wildlife, through Whittingham Wildlife Management Area

Liberty Park Natural Area

Location: Liberty State Park, Jersey City, Hudson County

Management Objective: preservation of a salt marsh in Upper New York Bay and created uplands

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Liberty State Park

Manahawkin Natural Area

Location: Manahawkin Wildlife Management Area, Stafford Township, Ocean County

Management Objective: preservation of a mature bottomland hardwood forest, and rare species habitat

Interim Classification: ecological reserve

Administering Agency: Division of Fish and Wildlife, through Assunpink Wildlife Management Area

North Brigantine Natural Area

Location: City of Brigantine, Atlantic County

Management Objective: preservation of salt marsh habitat, coastal dune, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Bass River State Forest

Osmun Forest Natural Area

Location: Knowlton Township, Warren County

Management Objective: preservation of a northeastern mixed hardwood forest

Interim Classification: ecological reserve

Administering Agency: Division of Parks and Forestry, through Jenny Jump State Forest

Oswego River Natural Area

Location: Wharton State Forest, Washington and Bass River Townships, Burlington County

Management Objective: preservation of hardwood swamp, pitch pine lowland, pine-oak, Atlantic white cedar, and bog communities, which serve as rare species habitat

Interim Classification: ecological reserve

Administering Agency: Division of Parks and Forestry, through Wharton State Forest

Parvin Natural Area

Location: Parvin State Park, Pittsgrove Township, Salem County

Management Objective: preservation of mixed oak and pine forest on the Pine Barrens fringe with a diversity of plant and animal species, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Parvin State Park

Ramapo Lake Natural Area

Location: Ramapo Mountain State Forest, Wanaque and Ringwood Boroughs, Passaic County, and Oakland Borough, Bergen County

Management Objective: preservation of northern upland habitats and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Ringwood State Park

Rancocas Natural Area

Location: Rancocas State Park, Westampton Township, Burlington County

Management Objective: preservation of freshwater marsh and southern floodplain habitat, including one of the largest stands of wild rice in the State

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Brendan T. Byrne State Forest

Readington Natural Area

Location: Readington Township, Hunterdon County

Management Objective: preservation of mixed hardwood forest, floodplain habitat and early stages of secondary field succession

Interim Classification: conservation preserve

Administering Agency: New Jersey Natural Lands Trust

Strathmere Natural Area

Location: Corson's Inlet State Park, Upper Township, Cape May County

Management Objective: preservation of a dune habitat, plant community associations, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Belleplain State Forest

Sunfish Pond Natural Area

Location: Worthington State Forest, Pahaquarry Township, Warren County

Management Objective: preservation of a lake of glacial origin surrounded by a hardwood forest, and rare species habitat

Interim Classification: ecological reserve

Administering Agency: Division of Parks and Forestry, through Worthington State Forest

Swan Point Natural Area

Location: Brick Township, Ocean County

Management Objective: preservation of tidal salt marsh ecosystem and Atlantic white cedar swamp

Interim Classification: ecological reserve

Administering Agency: Division of Parks and Forestry, through Island Beach State Park

Swartswood Natural Area

Location: Swartswood State Park, Stillwater and Hampton Townships, Sussex County

Management Objective: preservation of rare species and plant communities in sinkhole pond ecosystems

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Swartswood State Park

Swimming River Natural Area

Location: Borough of Tinton Falls, Monmouth County

Management Objective: preservation of habitat diversity including freshwater marsh, saltwater marsh, woodlands, fields and estuary

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Allaire State Park

Tillman Ravine Natural Area

Location: Stokes State Forest, Walpack and Sandyston Townships, Sussex County

Management Objective: preservation of a hemlock ravine and associated geologic forms, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Stokes State Forest

Troy Meadows Natural Area

Location: East Hanover and Parsippany-Troy Hills Townships, Morris County

Management Objective: preservation of freshwater marsh habitat northern swamp and floodplain habitat, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Ringwood State Park

Washington Crossing Natural Area

Location: Washington Crossing State Park, Hopewell Township, Mercer County

Management Objective: preservation of natural succession and mixed hardwood forests, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Washington Crossing State Park

Wawayanda Hemlock Ravine Natural Area

Location: Wawayanda State Park, Vernon Township, Sussex County

Management Objective: preservation of hemlock/mixed hardwood forest and rare species

habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Wawayanda State Park

Wawayanda Swamp Natural Area

Location: Wawayanda State Park, Vernon Township, Sussex County, and West Milford Township, Passaic County

Management Objective: preservation of extensive northern swamp and forest habitats, glacially formed, spring-fed pond, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Wawayanda State Park

West Pine Plains Natural Area

Location: Bass River State Forest, Woodland Township, Burlington County

Management Objective: preservation of globally rare ecological communities within the West Plains Fireshed, including dwarf pine plains, pitch pine-shrub oak barrens, pitch pine-reedgrass savanna and hydric pine plains, as well as numerous rare plant and animal species

Interim Classification: conservation preserve

Administering Agency: Division of Parks and Forestry, through Bass River State Forest

Whittingham Natural Area

Location: Whittingham Wildlife Management Area, Fredon and Green Townships, Sussex County

Management Objective: preservation of a northern swamp and floodplain forest on a limestone cliff, rare and exemplary natural communities, and rare species habitat

Interim Classification: conservation preserve

Administering Agency: Division of Fish and Wildlife, through Whittingham Wildlife Management Area

The New Jersey Natural Lands Trust Act, N.J.S.A. 13:1B-15.119, created and established in but not of the Division of Parks and Forestry, a body corporate and politic with corporate succession, to be known as the New Jersey Natural Lands Trust. The statutory goals of the trust include the preservation of land in its natural state for enjoyment by the public and to protect elements of natural diversity.

Information about the size and boundaries of lands currently owned or held by the New Jersey Natural Lands Trust can be obtained at <http://www.njnlt.org/>. The current list of such lands is as follows:

ATLANTIC COUNTY

Allen's Woods Preserve, Hamilton Township
Babcock Creek Preserve, Hamilton Township
Bearshead Preserve, Hamilton Township
Cape May Pond Preserve, Hamilton Township
Catawba Preserve, City of Estell Manor
Clarks Landing Preserve, Galloway Township
Collings Pines Preserve, Folsom Boro
Danenhauer Preserve, Hamilton Township
Dr. Charles Breedis Preserve, Hamilton Township
Folsom Preserve, Folsom Borough
Hamilton Preserve, Egg Harbor and Hamilton Townships
Heathercroft Preserve, Egg Harbor Township
Holiday Preserve, Hamilton Township
John's Woods Preserve, Hamilton Township
Little Mill Preserve, Mullica Township
Makepeace Preserve, Mullica Township
Mankiller Preserve, Hamilton Township
Nacote Creek Preserve, City of Port Republic
Oakwoods Preserve, Hamilton Township
Pancoast Preserve, Buena Vista Township
Panther Branch Preserve, Buena Vista Township
Pleasant Mills, Mullica Township
Pomona Woods, Hamilton Township
Pruchnicki Preserve, Hamilton Township
Risley's Channel Preserve, Egg Harbor Township
Silver Preserve, Buena Vista and Hamilton Townships
Thompstontown Preserve, Hamilton Township
Three Rivers Preserve, Hamilton Township
Unexpected Wildlife Refuge, Buena
Waldhausen Preserve, Folsom Boro
Watering Race Preserve, Hamilton Township

BERGEN COUNTY

Bellemead Preserve, Lyndhurst Township

BURLINGTON COUNTY

Barton's Run Preserve, Evesham Township
Bear Swamp at Red Lion Preserve, Medford and Southampton Townships
Five Pines, Bass River Township
Holly Ford Ice Preserve, Mount Holly Township
Moorestown Project Areas, Moorestown and Mount Laurel Township
Retreat Preserve, Southampton Township
Sooy Place Preserve, Woodland Township
Taylor Wildlife Preserve, Cinnaminson Township
Wading River Marsh Preserve, Washington Township

CAMDEN COUNTY

Four Mile Branch, Winslow Township
Long-A-Coming Preserve, Winslow Township
Penny Pot Preserve, Winslow Township

CAPE MAY COUNTY

Frye Preserve, Middle Township
Miller Creek Marsh Preserve, Upper Township
Stacherski Project Area, Ocean City

Shorebird Preserves:

Cape May County Agreement, Middle and Lower Townships
Douglas, Middle Township
Carl and Evelyn Foster property, Middle Township
Charles and Lida Foster property, Middle Township
Hand, Middle Township
John Jarvis property, Middle Township
Shivers Agreement, Middle Township
Skills, Lower Township
Tolz Easement, Middle Township
Tolz Beach, Lower Township

CUMBERLAND COUNTY

Kings End Preserve, Fairfield Township
Maple Hollow Preserve, Fairfield Township
Richard Buhlman Preserve, Fairfield Township
Sharps Branch, City of Vineland

Shorebird Preserves:

Environmental Concern, Inc., property, Maurice River Township
Moores, Maurice River Township
Orr property, Maurice River Township

ESSEX COUNTY

Great Piece Meadows Preserve, Fairfield Township
Iris Construction Preserve, Fairfield Township

GLOUCESTER COUNTY

Big Timber Creek Preserve, Deptford Township
Black Acres Preserve, Franklin Township
Collings Pines, Monroe Township
Four Mile Branch Preserve, Monroe Township
Manaway Branch Preserve, Franklin Township and Newfield Borough
Monroe Preserve, Monroe Township
Nehonsey Brook Preserve, Greenwich Township
Racoon Creek Preserve, Swedesboro Borough and Woolwich Township
Squankum Branch Preserve, Monroe Township
Tuckahoe Preserve, Franklin Township
Unexpected Wildlife Refuge, Franklin Township

HUNTERDON COUNTY

Arbraity's Pine Stand Preserve, Delaware Township
Collins Easement, Stockton Township
Gravel Hill Preserve, Holland Township
Hagedom Preserve, Lebanon Township
Isenburger Preserve, Lebanon Township
Mulhockaway Creek Preserve, Union Township
Musconetcong Ridge Preserve, Bethlehem Township
Readington Preserve, Readington Township
Sweet Hollow Preserve, Alexandria and Holland Townships
Thomas F. Breden Preserve at Milford Bluffs, Holland Township
Wolock at Sweet Preserve, Alexandria Township

MERCER COUNTY

Curlis Lake Easement, Hopewell Township
Highfields Preserve, Hopewell Township

MIDDLESEX COUNTY

Cemetery Bend Preserve, Monroe Township

Soldiers and Sailors Preserve, Edison and Woodbridge Townships
Stevens Easement, Edison Township

MONMOUTH COUNTY

Whale Pond Brook Preserve, Eatontown Borough and Ocean Township

MORRIS COUNTY

Black Meadows Preserve, Hanover Township and Florham Park Borough
Budd Lake Bog Preserve, Mount Olive Township
Craighmont Farms Preserve, Boonton Township
Great Piece Meadows Preserve, Lincoln Park Borough and Montville Township
Primrose Brook Preserve, Harding Township

OCEAN COUNTY

Audubon Easement, Berkeley Township
Barnegat Preserve, Barnegat Township
Beaverdam Preserve, Brick Township
Cedar Bridge Preserve, Lakewood and Brick Townships
Clamming Creek Preserve, Berkeley Township
Crossley Preserve, Berkeley and Manchester Townships
Double Trouble Preserve, Lacey Township
Hampton Pines Preserve, Lakewood Township
Kislow Preserve, Stafford Township
Lacey Project Area, Lacey Township
Lazarus Preserve, Stafford Township
Lin-Lee Preserve, Barnegat Township
Mystic Island Preserve, Little Egg Harbor Township
Sands Point Harbor Preserve, Ocean Township
Tilton's Creek Preserve, Dover Township
Warren Grove Bogs Preserve, Stafford Township
West Plains Preserve, Barnegat Township

PASSAIC COUNTY

Preakness Mountain Preserve, Wayne Township

SALEM COUNTY

Game Branch Preserve, Carney's Point and Oldman's Townships

SOMERSET COUNTY

Flemer Preserve, Franklin Township
Lincoln Grove Preserve, Franklin Township

SUSSEX COUNTY

Blair Creek Preserve, Stillwater Township
Bufanio, Stillwater Township
Congleton Wildlife Sanctuary, Hardyston, Wantage and Lafayette Townships
Crooked Swamp Caves Preserve, Lafayette Township
Elm Spring Preserve, Wantage Township
Lubbers Run Preserve, Byram Township
McCarthy Preserve, Hopatcong
Papakating Creek Preserve, Frankford and Wantage Townships
Quarryville Brook Preserve, Wantage Township
Reinhardt Preserve, Montague Township
Straders Pond Preserve, Andover Township
Wallkill River Project Area, Sparta Township and Franklin and Ogdensburg Boroughs

WARREN COUNTY

Bear Creek Preserve, Allamuchy and Frelinghuysen Townships
Beech Ridge Preserve, Blairstown Township
Blair Creek Preserve, Hardwick Township
Buckhorn Creek Preserve, White Township
Earl Brugler Preserve, Blairstown Township
Hardwick Meadows Preserve, Hardwick Township
High Rock Mountain Preserve, Liberty Township
Limestone Ridge Marsh Preserve, Blairstown Township
Mountain Lake Bog Preserve, White and Liberty Townships

AREAS DESIGNATED AS WILD AND SCENIC RIVER CORRIDORS, N.J.A.C. 7:1E-1.8(a)15

AREA: Areas designated as wild or scenic river corridors, as defined in N.J.A.C. 7:7E-3.46(a), which includes all such areas designated pursuant to the National Wild and Scenic Rivers Act, 16 U.S.C. 1271 *et seq.*, or the New Jersey Wild and Scenic Rivers Act, N.J.S.A. 13:8-45 *et seq.*

ENVIRONMENTAL IMPORTANCE: The National Wild and Scenic Rivers Act recognizes outstandingly remarkable scenic, recreational, fish and wildlife, historic, cultural and similar values of certain rivers. It also has the goals of reducing loss of life and property resulting from the over development of floodplains. These free-flowing rivers have outstandingly remarkable resource values. They are culturally and ecologically important.

CITATIONS: The National Wild and Scenic Rivers Act, 16 U.S.C. 1271 *et seq.*, states that certain selected rivers of the Nation which, with their immediate environments, possess outstanding remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations.

A wild, scenic or recreational river area eligible to be included in the system is a free-flowing stream and the related adjacent land area that possesses one or more of the values referred to above. Every wild, scenic or recreational river in its free-flowing condition, or upon restoration to this condition, is considered eligible for inclusion in the national wild and scenic rivers system and, if included, is classified, designated, and administered as one of the following:

- (1) Wild river areas - Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
- (2) Scenic river areas - Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
- (3) Recreational river areas - Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

The following rivers and the land adjacent thereto are designated as components of the national wild and scenic rivers system as of 2007:

Delaware River, Pennsylvania and New Jersey - The segment from the point where the river crosses the northern boundary of the Delaware Water Gap National Recreation Area to the point where the river crosses the southern boundary of such recreation area.

Great Egg Harbor, New Jersey - 39.5 miles of the main stem with the following

classifications:

- (A) from the mouth of the Patcong Creek to the mouth of Perch Cove Run, approximately 10 miles, as a scenic river;
- (B) from Perch Cove Run to the Mill Street Bridge, approximately 5.5 miles, as a recreational river;
- (C) from Lake Lenape to the Atlantic City Expressway, approximately 21 miles, as a recreational river; and
- (D) from Williamstown-New Freedom Road to the Pennsylvania Railroad right-of-way, approximately 3 miles, as a recreational river, and 89.5 miles of the following tributaries in the following classifications:
 - (E) Squankum Branch from its confluence with Great Egg Harbor River to Malaga Road, approximately 4.5 miles, as a recreational river;
 - (F) Big Bridge Branch, from its confluence with Great Egg Harbor River to headwaters, approximately 2.2 miles, as a recreational river;
 - (G) Penny Pot Stream Branch, from its confluence with Great Egg Harbor River to 14th Street, approximately 4.1 miles, as a recreational river;
 - (H) Deep Run, from its confluence with Great Egg Harbor River to Pancoast Mill Road, approximately 5.4 miles, as a recreational river;
 - (I) Mare Run, from its confluence with Great Egg Harbor River to Weymouth Avenue, approximately 3 miles, as a recreational river;
 - (J) Babcock Creek, from its confluence with Great Egg Harbor River to headwaters, approximately 7.5 miles, as a recreational river;
 - (K) Gravelly Run, from its confluence with Great Egg Harbor River to Pennsylvania Railroad Right-of-Way, approximately 2.7 miles, as a recreational river;
 - (L) Miry Run, from its confluence with Great Egg Harbor River to Asbury Road, approximately 1.7 miles, as a recreational river;
 - (M) South River, from its confluence with Great Egg Harbor River to Main Avenue, approximately 13.5 miles, as a recreational river;
 - (N) Stephen Creek, from its confluence with Great Egg Harbor River to New Jersey Route 50, approximately 2.3 miles, as a recreational river;
 - (O) Gibson Creek, from its confluence with Great Egg Harbor River to First Avenue, approximately 5.6 miles, as a recreational river;
 - (P) English Creek, from its confluence with Great Egg Harbor River to Zion Road, approximately 3.5 miles, as a recreational river;
 - (Q) Lakes Creek, from its confluence with Great Egg Harbor River to the dam, approximately 2.2 miles, as a recreational river;
 - (R) Middle River, from its confluence with Great Egg Harbor River to the levee, approximately 5.6 miles, as a scenic river;
 - (S) Patcong Creek, from its confluence with Great Egg Harbor River to Garden State Parkway, approximately 2.8 miles, as a recreational river;
 - (T) Tuckahoe River (lower segment) from its confluence with Great Egg Harbor River to the Route 50 bridge, approximately 9 miles, as a scenic river;
 - (U) Tuckahoe River, from the Route 50 Bridge to Route 49 Bridge, approximately 7.3 miles, as a recreational river; and
 - (V) Cedar Swamp Creek, from its confluence with Tuckahoe River to headwaters, approximately 6 miles, as a scenic river.

Maurice River, New Jersey - 35.4 miles of the main stem with the following classifications:

- (A) Middle Segment, from Route 670 Bridge at Mauricetown to 3.6 miles upstream (at drainage ditch just upstream of Fralinger Farm), approximately 3.8 miles as a scenic river.
- (B) Middle Segment, from the drainage ditch just upstream of Fralinger Farm to one-half mile upstream from the United States Geological Survey Station at Burcham Farm, approximately 3.1 miles, as a recreational river.
- (C) Upper Segment, from one-half mile upstream from the United States Geological Survey Station at Burcham Farm to the south side of the Millville sewage treatment plant, approximately 3.6 miles, as a scenic river.
- (D) Menantico Creek, Lower Segment, from its confluence with the Maurice River to the Route 55 Bridge, approximately 1.4 miles, as a recreational river.
- (E) Menantico Creek, Upper Segment, from the Route 55 Bridge to the base of the impoundment at Menantico Lake, approximately 6.5 miles, as a scenic river.
- (F) Manumuskin River, Lower Segment, from its confluence with the Maurice River to a point 2.0 miles upstream, a recreational river.
- (G) Manumuskin River, Upper Segment, from a point 2.0 miles upstream from its confluence with the Maurice River to its headwaters near Route 557, approximately 12.3 miles, as a scenic river.
- (H) Muskee Creek, from its confluence with the Maurice River to the Pennsylvania Seashore Line Railroad Bridge, approximately 2.7 miles, as a scenic river.

Lower Delaware River and Associated Tributaries, New Jersey and Pennsylvania - 65.6 miles of river segments in New Jersey and Pennsylvania, with the following classifications:

- (A) the segment from river mile 193.8 to the northern border of the city of Easton, Pennsylvania, approximately 10.5 miles, as a recreational river.
- (B) the segment from a point just south of the Gilbert Generating Station to a point just north of the Point Pleasant Pumping Station, approximately 14.2 miles, as a recreational river.
- (C) the segment from the point just south of the Point Pleasant Pumping Station to a point 1,000 feet north of the Route 202 bridge, approximately 6.3 miles, as a recreational river.
- (D) the segment from a point 1,750 feet south of the Route 202 bridge to the southern border of the town of New Hope, Pennsylvania, approximately 1.9 miles, as a recreational river.
- (E) the segment from the southern boundary of the town of New Hope, Pennsylvania, to the town of Washington Crossing, Pennsylvania, approximately 6 miles, as a recreational river.
- (F) Tincum Creek, approximately 14.7 miles, as a scenic river.

When the Secretary of the Interior designates a river as wild, scenic or recreational, notice is published in the Federal Register.

The New Jersey Wild and Scenic Rivers Act, N.J.S.A. 13:8-45 *et seq.* states that the New

Jersey Wild and Scenic Rivers System shall comprise river areas classified, designated and administered as wild, scenic, recreational or developed recreational rivers. These areas are delineated as follows:

Wild rivers areas, which are those rivers, or sections thereof, that are free of impoundment and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and undeveloped and waters unpolluted. Wild river areas are also consistent with Natural Areas.

Scenic river areas, which are those rivers, or sections thereof, that are free of impoundment, with watersheds or shorelines still largely primitive and undeveloped, but accessible in places by road.

Recreational river areas, which are those rivers, or sections thereof, that are readily accessible, that may have some development along their shorelines, and that may have undergone some impoundment or diversion.

Developed recreational rivers, which are those rivers, or sections thereof, that are readily accessible, that may have substantial development along their shorelines, that may have undergone substantial impoundment or diversion, but which remain suitable for a variety of recreational uses.

Each classification has a unique set of standards which specify the type of land and water uses permitted or prohibited in order to maintain the quality of the designated river area.

The Lower Atsion segment of the Mullica River is designated as a Wild River Component to the New Jersey Wild and Scenic Rivers System. This designated river area includes the delineated flood prone area and adjacent state owned lands as presented on the Official Map of the Lower Atsion Wild River Segment. The segment begins at the Central Railroad of New Jersey bridge downstream of Route 206 near Atsion, and ends at the nature trail footbridge near Batsto Village, including a portion of the Great Swamp Segment of the Batsto Natural Area.

Upon designation of a river area into the New Jersey Wild and Scenic Rivers System, notice, including a map portraying the boundaries of the river area, is published in the New Jersey Register.